IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TELCORDIA TECHNOLOGIES, INC.,	)	**REDACTED PUBLIC VERSION**
Plaintiff/Counterclaim Defendant,	)	
v.	)	
LUCENT TECHNOLOGIES INC.,	)	Civil Action No. 04-875-GMS
Defendant/Counterclaim Plaintiff.	)	
	)	
TELCORDIA TECHNOLOGIES, INC.,	)	
Plaintiff/Counterclaim Defendant,	)	
v.	)	
CISCO SYSTEMS, INC.,	)	Civil Action No. 04-876-GMS
Defendant/Counterclaim Plaintiff.	)	

TELCORDIA TECHNOLOGIES, INC.'S ANSWER TO DEFENDANTS' MOTION *IN
LIMINE* NO. 1:

TELCORDIA'S DAMAGES THEORIES ARE FULLY SUPPORTED
BY THE FACTS AND LAW

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Dated: February 22, 2007
178105.1

I.   THE DEFENDANTS ARE NOT ENTITLED TO SUMMARY JUDGMENT OF NO CONTRIBUTORY INFRINGEMENT UNDER 35 U.S.C. §§ 271 (b), (c), AND (f)

The defendants' "motion *in limine*" seeking to limit Telcordia's damages claim to less than 2% of the accused products is nothing more than a disguised and belated summary judgment motion on the issue of inducement and contributory infringement under 35 U.S.C. §§ 271(b), (c), and (f). Procedurally, the motion is improper—the defendants did not move for summary judgment of no infringement under 35 U.S.C. §§ 271(b), (c), or (f). (D.I. 72). The motion should be denied on this ground alone.

Moreover, on the merits the motion should be denied and all of the accused products should be included in the damages base. In accordance with the statutory acts of infringement set forth in 35 U.S.C. §§ 271(c) and (f)(2), the defendants make and sell "boxes"—switches and routers—that include components (e.g., circuitry and/or software) that are especially made or adapted for practicing the accused Synchronous Residual Time Stamp ("SRTS") invention of the '633 patent.[1] (Ex. A). As Telcordia's expert explained, the specific circuitry or software in those boxes has *no purpose* other than practicing SRTS. *Id.* The defendants' manufacture and sale of these SRTS-capable boxes alone thus constitutes contributory infringement. 35 U.S.C. §§ 271(c) and (f)(2).[2]

Likewise, in accordance with the statutory acts of infringement set out in 35 U.S.C. §§ 271(b) and (f)(1), defendants provide directions and instruction manuals with their SRTS-capable boxes that enable and encourage the end user's practice of SRTS and infringement of the '633 patent.[3] (Ex. C-G). *Metabolite Labs., Inc. v. Laboratory Corp. of Am. Holdings*, 370 F.3d 1354, 1364-65 (Fed. Cir. 2004).

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[1] Defendants' arguments are limited exclusively to products accused of infringing the '633 patent and do not extend to products accused of infringing the '763 patent. (Ex. B).

[2] Moreover, the defendants' focus on the fact that their SRTS-capable boxes can perform many other functions is misplaced, and does not negate defendants' contributory infringement under 35 U.S.C. § 271(c). *Philips Elecs. North America Corp. v. Contec Corp.*, 411 F. Supp.2d 470, 476 (D. Del. 2006) ("Additional functions in a device that practices a patented method does not diminish direct infringement and, therefore, the fact that the device sold has other functions which are performed simultaneously with the patented method does not otherwise substantiate a noninfringing use for the purpose of § 271(c)."), *quoting Oak Indus., Inc. v. Zenith Elecs. Corp.*, 697 F.Supp. 988, 995 (N.D. Ill. 1988).

[3] Defendants' suggestion that Telcordia's infringement theory improperly requires that the accused devices must be "alter[ed] in a way that would satisfy all the limitations of a patent claim" misses the mark. (D.I. 292, Ex. 1). Telcordia's theory is based on a straightforward application of vicarious liability under 35 U.S.C. §§ 271(b), (c), and (f), and is not based on any type of "alteration" of the accused products.

Given their infringement under 35 U.S.C. §§ 271(b), (c), and (f), defendants' effort to shelter the vast majority of their sales from potential damages based only on a disparity between the number of SRTS-capable boxes sold and the number of SRTS-capable cards sold is highly inappropriate. The Federal Circuit has already considered and rejected the argument that damages should be limited due to disparity in sales between two different components, both of which are needed for direct infringement. *Stryker Corp. v. Intermedics Orthopedics, Inc.*, 96 F.3d 1409, 1416 (Fed. Cir. 1996). The *Stryker* case involved direct infringement of a hip implant prosthesis patent by an "APR II stem" together with an "APR II distal sleeve." *Id.* The defendant sold 20,966 "APR II stems" but only 4,718 "APR II distal sleeves." *Id.* The defendant argued that the district court erred in granting damages based upon all sales, rather than just upon the 4,718 possible stem/sleeve combinations (arguing that "since sleeveless stems do not infringe, it was error of law to award damages for their sales."). *Id.* The Federal Circuit disagreed:

> We find no error in the district court's decision to award damages for APR II stems implanted without the distal sleeves. . . . In its damages analysis, the district court examined how Intermedics manufactured, used, and sold the APR II. It found that Intermedics always manufactured the APR II with a sleeve *option*. The APR II was marketed as a *total system*, including the distal sleeves.

Id. (emphasis added). Here, defendants are advancing the same argument that was rejected in *Stryker*—that where defendants sell _____ SRTS-capable boxes but only _____ SRTS-capable cards, damages should be limited to only _____ board/box combinations. But just like the products in *Stryker*, defendants' boxes are always manufactured with an SRTS option, and they are marketed as a total system, including the capability to practice SRTS.[4] As just one of many examples, **REDACTED** (Ex. H). Cisco's focus on SRTS is unsurprising given evidence of specific customer demands that boxes "shall support the SRTS (Synchronous Residual Time Stamp) method for asynchronous clock recovery." (Ex. I). Lucent also identifies

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[4] Although *Stryker* was a lost profits case, its rationale of full damages recovery is even more compelling here where Telcordia has been historically legally precluded from competing, and does not compete, in the hardware market, relying instead upon royalties as its only source of revenue related to its inventions. Similarly, although *Stryker* was a 271(a) case (requiring two components for direct infringement), its logic of full damages recovery applies with even greater force here, where the components together directly infringe under 271(a) *and* where each component *by itself* infringes under 271(b), (c), and/or (f).

compliance with SRTS at the top of its list of product features, and Lucent's 30(b)(6) witness on marketing explained that reference to the SRTS standard was included in Lucent's marketing literature because Lucent perceives the feature as important to a prospective customer's buying decision. (Ex. J, K). As such, just as in the *Stryker* case, defendants' boxes are always manufactured with SRTS capability and are marketed as a total system, including SRTS. (Exs. H, J, K). Defendants' infringing SRTS-capable boxes should not be sheltered from damages due only to a disparity of sales between SRTS-capable boxes and SRTS-capable cards.

Moreover, even if limiting the damages base due to the disparity in sales between boxes and cards were proper under the law—which it is not—such a limitation would not be appropriate under the facts of this case. As Cisco and Lucent both recognize,   **REDACTED**

(Ex. L). Because SRTS-capable cards can be shared between SRTS-capable boxes,[5] a limitation on damages that requires a one-to-one ratio of boxes to cards would improperly ignore a substantial amount of infringement.

II.   TELCORDIA IS ENTITLED TO PRESENT EVIDENCE OF CISCO'S FOREIGN SALES

In its motion, Cisco does not argue—indeed it cannot argue—that Telcordia is not entitled to damages based upon foreign sales of products that Cisco manufactured in the United States. As Cisco knows, the law is clear—manufacture in the United States is a statutory act of infringement, and Cisco is not somehow exonerated by ultimately selling abroad. *See e.g., Railroad Dynamics, Inc. v. A. Stucki Co.,* 727 F.2d 1506, 1519 (Fed. Cir. 1984) ("The award includes royalties for 1,671 carsets sold to foreign customers .... When [the defendant] made the 1,671 carsets in this country, it infringed claim 10. Whether those carsets were sold in the U.S. or elsewhere is therefore irrelevant, and no error occurred in including those carsets among the infringing products on which royalty was due."). Nor does Cisco argue—indeed it cannot argue—that Cisco does not in fact make the accused products in the United States. Cisco must admit (and already has admitted) that it manufactures and tests the accused products in the United States. Any suggestion to the contrary, as demonstrated below, is easily impeachable.

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[5] Indeed, even cursory research demonstrates a thriving after-market for used SRTS-capable cards, with almost 20 of Cisco's cards for sale on just one website right now. (Ex. M). If resold, each of those SRTS-capable cards will have been combined with multiple SRTS-capable boxes owned by multiple end users.

Unable to argue the law or the facts, but nevertheless unjustifiably seeking to slice Telcordia's damages in half, Cisco strains to present concocted and misleading arguments that Telcordia *cannot prove* (1) that Cisco's manufacturing occurs in the United States or (2) the actual amount of Cisco sales abroad.

As to the first point, Cisco misleadingly claims that Telcordia has never "connected" Cisco's foreign sales to "infringing domestic activity." This suggestion is flatly false—Cisco has consistently confirmed that the products at issue in this case are manufactured in the United States. For example, Cisco's Rule 30(b)(6) witness testified

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(Ex. O at 143-144, *see also* 119-123, 137-142, 155-56, 179-79, 194). Against this evidence, Cisco's "failure of proof" theory should be rejected, and the jury should be permitted to consider all evidence bearing upon Cisco's manufacturing activities in the United States.

As to the second point, Cisco disingenuously represents that Telcordia neither sought nor obtained evidence of Cisco's foreign sales, leaving Telcordia "[f]aced with no evidence of foreign sales." D.I. 292, Ex. 1 at 5. Again, this representation is flatly untrue. Telcordia not only sought such evidence (*see, e.g.,* Telcordia Interrogatory No. 2), but Cisco in fact produced its world-wide revenue figures for the products-in-suit, and Cisco's Rule 30(b)(6) witness clearly and unequivocally authenticated and explained the figures:

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(Ex. O, 190-91). Telcordia's evidence of foreign sales, therefore, consists of a quarter-by-quarter breakdown of world wide sales—including foreign sales—on a product family basis (for each of the accused products, Ex. N). This is the same breakdown and report:

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(Ex. O, 187).

In light of this testimony, Cisco's statement that Telcordia "abandoned" its effort to obtain discovery on foreign sales and is thus "[f]aced with no evidence of foreign sales" is untenable. It is true that Telcordia sought a further breakdown of the foreign sales evidence Cisco presented (showing, for example, the identity of customers, the exact dates of sales, etc.) because Cisco's 30(b)(6) witness testified that

REDACTED   (Ex. O at 86-90). And it is true that Cisco

wrongly, without any justification, refused   (Ex. P). But none of that detailed information—while highly relevant and improperly withheld from discovery—is necessary to support Telcordia's damages claim. And given the clear and authenticated evidence of foreign sales, Telcordia did not deem a discovery dispute over a further breakdown of that information worthy of this Court's time and attention. That is not an "abandonment" as Cisco claims, but rather it is a reasoned judgment call Telcordia made in an effort to spare the Court from having to preside over another discovery dispute. If anything, Cisco's failure to produce a further breakdown of foreign sales despite proper discovery requests and multiple specific requests seeking that information should operate to Cisco's detriment, not Telcordia's. *Beatrice Foods Co. v. New England Printing and Lithographic Co.*, 923 F.2d 1576, 1579 (Fed. Cir. 1991) ("[W]here the infringer's own conduct prevented the patentee from accurately determining the damages, or made it more difficult for the patentee to do so, the district court may resolve all doubts against the infringer and determine damages on the best available evidence. . . . any adverse consequences must rest on the infringer when the inability to ascertain lost profits is due to the infringer's own failure to keep accurate or complete records.")

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Dated: February 22, 2007
178105.1

EXHIBIT A

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EXHIBIT B

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EXHIBIT C

Cisco MGX 8850 Installation and Configuration

Release 1.1.00
May 1999

Eight-Port Circuit Emulation Service Modules

Step 2 Optionally, you can use cnfcon to modify an individual connection. This command requires a channel number. If you add a connection by using addcon, you do not need to specify a channel number because the system automatically uses the next available number. To obtain the channel number for cnfcon, execute dspcons.

cnfcon *<port_num> <CDVT> <CLIP> <bufsize> <cbrclkmode> <isenable> <exttrigis>*

- *port_num* is the port number.

- *CDVT* is a tolerable variation for the arrival time of cells. For T1, the range is 125–24000 micro seconds. For E1, the range is 125–26000 micro seconds. Both require 125-microsecond increments.

- *CLIP* is CellLossIntegrationPeriod, an amount of time a connection can be in an error condition before an alarm is declared. The range is 1000–65535 milli seconds.

- *bufsize* is the egress buffer size in bytes. These buffers are used for tolerating variations in the cell delay. The size can be automatically computed, or you can enter a specific size in bytes.

- *cbrclkmode* is the clock mode for a circuit emulation connection. The values are 1–3. 1 is synchronous. 2 is SRT. 3 is adaptive. SRT and adaptive are asynchronous clocking schemes.

- *isenable* is a flag to enable the idle code (ABCD signalling bits) based cell suppression feature on a connection. If you enable this feature, idle suppression logic is activated so that suppression begins when valid idle ABCD bits are detected. This feature is valid for only single DS0 connections. Possible values are 1 to enable and 2 to disable.

- *exttrigis* is an enable for an external idle suppression trigger. With this feature enabled, the logic forcefully suppresses cells on a single DS0 connection. Enter a 1 to disable idle suppression or a 2 to enable idle suppression.

Step 3 Optionally, you can configure connection parameters for the network segment of a three-segment connection:

cnfswparms *<chan_num> <mastership> <vpcflag> <conn_service_type>* (=cos) *<route_priority> <max_cost> <restrict_trunk_type> <pcr> <mcr> <pct_util>*

- *chan_number* is the connection in the range 32–279.

- *mastership* specifies the current endpoint as master or slave. 1=master. 2=slave (default)

- *vpcflag* indicates whether the connection is a VPC or a VCC: 1=VPC, and 2=VCC.

- *conn_service_type* selects the type of service for the connection: 1=cbr, 2=vbr, 3 is not used, 4=ubr, 5=atfr, 6=abrstd, and 7=abrfst.

- *route_priority* is the priority of the connection for re-routing. The range is 1–15 and is meaningful only in relation to the priority of other connections.

- *max_cost* is a number establishing the maximum cost of the connection route. The range is 1–255 and is meaningful only in relation to the cost of other connections.

- *restrict_trunk_type* is a number that specifies the type of trunk this connection can traverse. The numbers are 1 for no restriction, 2 for terrestrial trunk only, and 3 for satellite trunk only.

- *pcr* is the peak cell rate.

- *mcr* is the minimum cell rate. The range is 1–65535 cells per second.

- *pct_util* is the percent utilization in the range 1–100.

EXHIBIT D

Cisco SYSTEMS

Cisco Catalyst 8500 Series Multiservice Switch Routers

Clocking Requirements for the LightStream 1010, Catalyst 8510-MSR and Catalyst 8540-MSR

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Clocking Requirements for the LightStream 1010, Catalyst 8510-MSR and Catalyst 8540-MSR

Contents

Introduction

Network clocking is the means by which a clock signal is generated or derived and distributed through a network and its individual nodes for the purpose of ensuring synchronized network operation.

Network clocking is an important design consideration in many ATM networks, yet often remains poorly understood. A solid network clocking design is essential to the successful deployment of any ATM network that carries voice or video traffic. The purpose of this document is to describe the architecture, issues, tradeoffs, and options for designing network clocking for ATM networks in general, as well as those using the Lightstream LS1010, Catalyst 8510-MSR, and the Catalyst 8540-MSR platforms.

When Do You Need to Worry About Network Clocking?

You need to seriously consider network clocking in any network that will carry voice, video, or any other bit synchronous traffic. Circuit Emulation Service (CES) and VToA require an end-to-end timing relationship and therefore must have a well-designed network clock distribution tree.

Networks that carry purely data traffic that does not require an end-to-end timing relationship (for example, TCP/IP) need not worry as much about clock quality. It is always beneficial, however, to have an understanding of the clock sources and distribution topology in any ATM network.

Network Clock System Architecture

A basic understanding of the clocking capabilities with the different platform and clock hardware options is helpful in determining what hardware to select for a particular application. The figure below shows the clocking architecture for the LS1010 with FC-PFQ and the 8510-MSR.
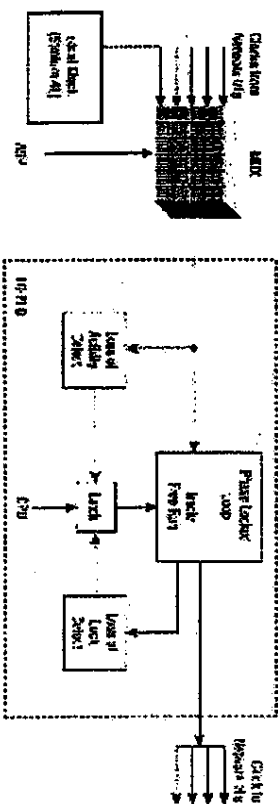
The overall clock hardware architecture for the 8540-MSR with the Network Clock Module (NetClkMod) installed (see the figure below) is similar to the LS1010 with FC-PFQ. The notable exceptions are the improved local clock source (Stratum 3) and the additional Building Integrated Time Supply (BITS) inputs.
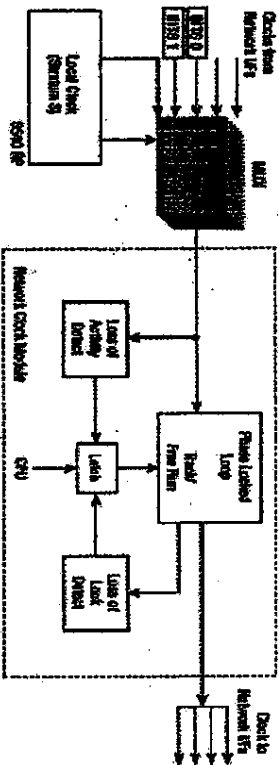
The requirements of the various clock stratum levels are listed in the following table.

Stratum Level	Free-Run Accuracy	Holdover Stability	Pull-in/Hold-in Range
1	$+/-1 \times 10^{-11}$	N/A	N/A
2	$+/-1.6 \times 10^{-8}$	$+/-1 \times 10^{-10}$ / day	Must be capable of synchronizing to clock with accuracy of $+/-1.6 \times 10^{-8}$
3	$+/-4.6 \times 10^{-6}$	< 255 slips ($+/- 3.7 \times 10^{-7}$) for initial 24 hours of holdover	Must be capable of synchronizing to clock with accuracy of $+/-4.6 \times 10^{-6}$
SONET Minimum Clock	$+/-20 \times 10^{-6}$	Under Study	Must be capable of synchronizing to clock with accuracy of $+/-20 \times 10^{-6}$
4E	$+/-32 \times 10^{-6}$	N/A	Must be capable of synchronizing to clock with accuracy of $+/-32$

$[\text{x }10^{-6}]$

The BITS input is essentially an external timing reference that must be traceable to a stratum 3 clock or better. The BITS inputs on the NetClkMod can be configured to accept either a T1 or an E1 framed input. Although this clock input is T1 or E1 framed, it does not carry data and can not be used for any other purpose than to derive clocking for the system.

The following table lists the functional differences between the FC-PFQ, FC-PCQ, and NetClkMod:

Platform	Up/Down Detection	Loss of Sync Detection	Phase Adjusted Cutover	Stratum-3 Clock	BITS Port	Clock Source Preference
8540-MSR with NetClkMod	Yes	Yes	Yes	Yes	Yes	Best
8510-MSR	Yes	Yes	Yes	No	No.	Medium
LS1010 with FC-PFQ	Yes	Yes	Yes	Yes	No	Medium
8540-MSR without NetClkMod	Yes	No	No	No	No	Poor
LS1010 with FC-PCQ	Yes	No	No	No	No	Poor

You can select the system Network Clock from any of the suitable network interface cards listed in the following table or the local oscillator on the ASP (Stratum 4E).

Network Interface	Usable as Network Clock Source
T1/E1 ATM	Yes
T1/E1 CES	Yes
25M ATM	No
8 Port IMA	Yes
2 Port DS3/E3	No

4 Port DS3/E3	Yes
Channelized DS3 Frame Relay	Yes
OC-3c	Yes
OC-12c	Yes
OC-48c	Yes

In the case of the 8540-MSR, the NetClkMod (Stratum-3) oscillator can be used as a clock source. The BITS port on the NetClkMod can also be used to take an external clock source and is fed into the input multiplexor.

On the 8540-MSR with NetClkMod, 8510-MSR, and LS1010 with FC-PFQ, the selected clock is fed into phase lock loop (PLL), which is capable of locking onto and tracking the selected the clock source. This high quality, locked clock is then fed to the network clock interfaces to provide interface timing.

There are two methods of determining whether or not the selected clock source is of sufficient quality for use as the system clock and whether or not to initiate a network clock switch over.

- Loss of activity detection, which simply monitors the up/down state of the selected interface.

- Loss of lock detection. If the quality of the selected clock is not acceptable, then the selected clock source will be declared down and a backup source is selected.

Another benefit of the PLL is that is allows for a smooth cut over between clock sources. Although not necessarily without loss, this phase-shifted clock cutover minimizes network clocking disruptions.

The LS1010 with the FC-PCQ (also known as FC1) or the 8540-MSR without the NetClkMod do not have the PLL and loss of lock detect feature. Therefore, they are not suitable for network designs where high quality network clocking is required.

There are actually two areas in the system where you can make clocking selections. The first is the system or global clock. The two choices available for the system clock are the local clock on the ASP or any of the clocks derived from network interfaces (see the figure above). There are two exceptions as noted in Table 2 to using network interfaces to derive clock; these are the 25M ATM port adapter module (PAM) and the 2 port DS3 PAM. The 2 port DS3 PAM is EOL.

The other piece where you make a clock selection is on the individual PAM's. Each PAM has several clock sources available to it.

http://www.cisco.com/en/US/products/hw/switches/ps718/products_tech_note09186a00800d2d0.shtml

- Local free running oscillator (low quality oscillator on PAM)
- Network clocking (derived from ASP source)
- Loop timed (derived from line)

In general, you should never use the local free running oscillator on the PAM as a clock source. In most cases, the clock source will be derived from the main network clock. The exceptions are interfaces used to take external clocking and interfaces in the clock distribution tree path.

Network Clock Redundancy in the 8540-MSR

You can configure the 8540-MSR as a redundant system with back-up processors and switch fabrics. When configured with redundant route processors with NetClkMods, there are two possible failure scenarios that may occur: failure of the entire primary route processor or failure of the NetClkMod on the primary route processor.

Handling Route Processor Faults

State information for the primary NetClkMod is constantly being provided to the secondary NetClkMod that resides on a single chassis. Sufficient state information is transferred to allow the secondary to take over with minimal disruption. The state information transferred contains the contents of the network clocking internal database. Whenever the database is updated, the changes to the database are mirrored to the secondary.

When the primary route processor experiences a fault and it is necessary to begin controlling the network clocking from the secondary route processor, the secondary is notified that it is now the primary. If already has the clocking state and configuration.

Handling NetClkMod Faults

When a node is equipped with two NetClkMods and the primary NetClkMod experiences a fault, the secondary NetClkMod will take over for the failed unit. The switchover is handled transparently by the NetClkMod hardware. The NetClk software is informed of the switchover.

If both NetClkMods fail, the switch hardware will switch over to the local oscillator. This is a fairly serious failure and the network should not be allowed to operate in this degraded condition. This condition should be remedied as soon as possible.

Network Clock Distribution Protocol (NCDP)

NCDP is a Cisco value-added software feature that can greatly simplify the configuration and successful deployment of large ATM networks with synchronous clocking requirements. It operates on the same principle as spanning tree to automatically create a loop-free network clock distribution tree

http://www.cisco.com/en/US/products/hw/switches/ps718/products_tech_note09186a00800fc2d0.shtml

with minimized clock path lengths.

The benefit of NCDP is that optimal clock distribution trees will be created and maintained in the presence of link failures. NCDP is also very easy to configure. Once the NCDP clock sources are defined, typically a small number for the entire network, all you need to do is enable NCDP on the remaining switches.

When enabled, NCDP communicates over VPI/VCI 0/34 with neighbors across NNI interfaces.

Refer to Initially Configuring the ATM Switch Router for NCDP configuration and design recommendations.

Circuit Emulation Clocking

Circuit Emulation Clocking (CES) is the predominant application that requires you to consider network clocking. CES has several clocking modes. Choosing the best mode depends on the application and circumstances.

Refer to Configuring Circuit Emulation Services for more information on configuring CES. Also, see An Introduction to Circuit Emulation Services for more background information and detail on CES.

Inverse Multiplexing for ATM (IMA) Clocking

You should use synchronous mode clocking and structured service in most cases, and avoid adaptive clocking wherever possible. You should only use SRTS in special cases (see figure above).

The IMA specification 📄 outlines two different transmit clock modes:

* Common Transmit Clock (CTC) mode: Uses the same clock source for all links.

* Independent Transmit Clock (ITC) mode: Allows the use of separate clock sources by different links. In most circumstances using CTC mode is advised since it derives clock from one source and is more efficient.

Choosing CES Options

The ATM Switch Processor (ASP) has a default behavior in which the internal oscillator is used to clock the T1's in an IMA group. The global configuration command network-clock-select can be used to choose an external clock source. Otherwise, IMA interfaces could end up being down due to a clocking mismatch. In addition, the show ima interface atmX/Y/ima# interface may display a link in the IMA group as the common reference, but it may not be the source since the oscillator on the ASP

is selected by default.

By changing the mode to Independent Clock Mode (ITC), we can select clock source looped-timed on each individual link and derive our TX clock from the RX clock.

To change to ITC mode, do the following:

```
d12-3-l s1010-26#conf
twd: %SYS-5-CONFIG_I: Configured from console by console t
Enter configuration commands, one per line.  End with CNTL/Z.
d12-3-l s1010-26(config)#int atm 4/0/ima1
d12-3-l s1010-26(config-if)#int atm 4/0/ima1
d12-3-l s1010-26(config-if)#ima clock-mode independent
d12-3-l s1010-26(config-if)#
```

Design Recommendations

There are several recommendations that will help in the construction of reliable, high-quality network clock designs.

Clock Sources

Any given design will deploy certain hardware based on the overall requirements. The following lists all sources that could be available in the order of preference.

1. 8540-MSR with NetClkMod using BITS (Stratum-2 or higher external clock)
2. 8540-MSR with NetClkMod (Internal Stratum-3 Clock)
3. 8510-MSR or LS1010 with ASP-FCPFQ
4. 8540-MSR without NetClkMod or LS1010 with FC-PCQ

Separate Clocking and Data Topologies

There is no requirement that the network clock distribution tree have any relationship to the data forwarding paths. The clock distribution network should be considered an overlay network. Separating clocking and data paths can lead to increased network reliability. In this way, the loss of a data link will not necessarily cause the network clock distribution tree to reconverge.

Clock Network Topology

The network clock distribution tree should be designed to be as wide and shallow as possible. This will minimize the length of the clock distribution paths.

Avoid clocking loops at all times. Clock loops are created when two interfaces on the ends of a wire attempt to derive clocking from each other. Although network timing may appear to be working, the long-term stability of the clocking with clocking loops is susceptible to wander. Phase shifts caused by actions as simple as changing the length of a cable may cause clocking instabilities.

Clocking Loop and Loop Free Topology

In general it advisable to avoid long, linear network clock topologies. Jitter and wander accumulate as a function of the length of the clocking path. If the natural topology of the network is linear, consider placing the clock source in the center of the network rather that at one of the ends to minimize the depth of the clock distribution tree.

Ring topologies typically suffer from the same issues that plague long linear networks. Ring topologies are also susceptible to unintended clocking loops when the primary clock source is lost. Ring topologies tend to maximize clock distribution convergence times.
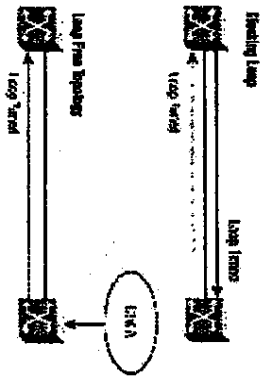
Leased Line Services

When designing networks that use leased line services it is important to understand how the carrier is treating the clock and take that into consideration. If the carrier is also providing clock, then the network devices on both ends should derive clock from the carrier. If the carrier is tunneling the clock through (for example, SONET service), the connection between the two devices connected to the carrier should be passing clock between them.

CSCO 0695-0188
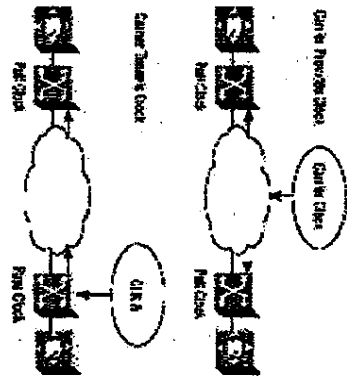
Revertive/Non-revertive Clocking

The choice of revertive vs. non-revertive clocking depends on the network design requirements. Revertive clocking will switch back to the "best" clock source after a failure. Non-revertive clocking will remain on the backup source until manually switched back or until the backup source fails. The design decision is whether it is more important to be using the "best" clock source at all times or better to minimize network disruptions caused by clock distribution reconvergence. For most applications, non-revertive reference switching is recommended.

Clocking Method

You should use synchronous clocking for applications that require end-to-end timing and where all network clocking can be traced back to a common reference source. Synchronous clocking is required with structured service.

You should only use SRTS when a network has interfaces that are clocked by sources that are not traceable to a common reference source. SRTS is only suitable for unstructured service.

You should avoid adaptive clocking in almost all cases.

NCDP

NCDP will automatically build optimized clock distribution networks. Whenever possible, you should use this feature.

Configuration Example

Below is an example of an NCDP configuration for a network where the primary reference source is defined as LS1010-A, interface cbr1/1/0 with a Stratum-3 clock source.

8510MSR-A Configuration

8510MSR-A
8510MSR-A#write term Building configuration... Current configuration: ! version 12.0 no service pad service timestamps debug datetime msec service timestamps log datetime msec no service password-encryption service udp-small-servers service tcp-small-servers ! hostname 8510MSR-A ! boot system flash slot0: cat8510m wp-mz.120-3e.W6.9.bin enable password ********* ! ip subnet-zero ip host-routing no ip domain-lookup ncdp source 1 CBR1/1/0 3 ncdp source 2 System ncdp revertive ncdp !

8510MSR-B Configuration

8510MSR-B
8510MSR-B#write term Building configuration....

```
Current configuration:
!
version 12.0
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname 8510MSR-B
!
boot system flash slot0: cat 8510m-wp-mz. 120-3c. W5. 9. bin
enable password ********
!
ip subnet-zero.
ip host-routing
no ip domain-lookup
ncdp revertive
ncdp
_
```

Results of the show network-clocks command on both switches are shown below:

```
8510MSR-A#

8510MSR-A#show network-clocks
clock configuration performed by Ncdp
Priority 1 clock source: CBR1/1/0(up)
Priority 2 clock source: No clock
Priority 3 clock source: No clock
Priority 4 clock source: No clock
Priority 5 clock source: System clock
Current clock source: CBR1/1/0, priority:1

8510MSR-B#show network-clocks
clock configuration performed by Ncdp
Priority 1 clock source: ATM0/0/0(up)
Priority 2 clock source: No clock
Priority 3 clock source: No clock
Priority 4 clock source: No clock
Priority 5 clock source: System clock
Current clock source: ATM0/0/0, priority:1
```

8510MSR_B#

When using an LS1010 PAM in an 8540, you cannot configure two ports on the same PAM to be network clock sources. The system will reject the command and print an error message, which you can view if console logging is enabled. However, when using native 8540 PAMs or SuperPAMs, such as the 4-port OC-12 and the 16-port OC-3, you can configure two ports on the same PAM to be network clock sources. These PAMs have the necessary clock hardware to support primary and secondary sources.

Debug Commands

The relevant debug commands are:

* `debug ports netclock`

* `debug NCDP <errors|events|packets>`

Related Information

* Configure Network Clocking
* Configure Network Clocking with NCDP
* Configuring CES

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http://www.cisco.com/en/US/products/hw/switches/ps718/products_tech_note09186a00800fd2d0.shtml

EXHIBIT E

Cisco – An Introduction to Circuit Emulation Services

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An Introduction to Circuit Emulation Services

Document ID: 10423

Introduction

Circuit Emulation Service (CES) allows DS−n and E−n circuits to be transparently extended across an ATM network using constant bit rate (CBR) ATM permanent virtual circuits (PVCs) or soft PVCs. CES is based on the ATM Forum standard af−vtoa−0078.0000 . This standard defines the CES Interworking Function (CES−IWF), which allows communication between non−ATM CBR circuits (such as T1, E1, E3, and T3) and ATM UNI interfaces. CES is typically implemented on ATM switches, but it can be implemented on ATM edge devices (such as routers) as well. CES is mostly used for communication between non−ATM telephony devices (like PBXs, TDM, and channel banks) or video devices (such as CODEC) and ATM devices (such as the Cisco LS1010 and Catalyst 8540−MSR ATM switch), or via an ATM uplinks (such asd the PA−A2 on the Cisco 7200 router).

Before You Begin

Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

Prerequisites

There are no specific prerequisites for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

CES Concepts

This section introduces some basic CES terminology. Refer to the sub-topics within this section for more details.

Note: This document focuses more on T1 examples, but you can apply the theory to E1 as well.

CES is typically used to transfer voice or video traffic across an ATM network. Voice and video, unlike data traffic, is very sensitive to delay and delay variance. CES uses virtual circuits (VCs) of the CBR ATM service category, which guarantees acceptable delay and delay variation. Therefore, it satisfies both voice and video traffic requirements. ATM adaptation layer one (AAL1) specified by ITU–T.1.363.1 is used at CES–IWF.

Some typical applications of CES are listed below:

- Extension of a private telephone network across multiple campuses, as illustrated below. For example, there are two campuses with a private branch exchange (PBX) on each. You can use an ATM network to connect two the PBXs without having ATM capabilities on the PBX itself. By doing so, voice traffic between two campuses uses your private ATM backbone instead of leased lines, thereby using the same ATM network for your voice and data needs.

- Video conferencing between multiple sites, as illustrated below:


The ATM Forum defined CES–IWF for many types of Telco circuits (such as DS–1, DS–3, E–1, E–3, J–1 and J–3), but for CES–IWF, the most common types are DS–1 service and E–1 service. In the Enterprise arena, Cisco provides T–1 and E–1 CES on the 8510–MSR, Catalyst 8540–MSR, and PA–A2 port adapter for the 7200 series router. Cisco also supports CES on some of its service provider products like the MGX 8220. However, this document concentrates on Enterprise products.

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CES–IWF converts the entire DS–n or E–n frame arriving from the customer premises equipment (CPE) (such as a PBX) into AAL1 ATM cells and transmits them across the ATM network using a single VC. The ATM switch or router on the remote end converts the AAL1 ATM cells into a DS–n or E–n frame, which is then transmitted to a Ds–n or E–n CPE device. This type of CES is called *unstructured CES*, which extends clear channel T1 (all 24 channels) across an ATM network (on a single VC).

In addition to this basic functionality, CES supports channelized T1 services by splitting T1 into multiple Nx64k circuits and transmitting those channelized T1 circuits across different ATM VCs with one or multiple destinations. This allows, for example, a single PBX to communicate with multiple remote PBXs using a single T1 port on a hub PBX. This type of hub–and–spoke example, known as *structured CES*, is shown below.

T1/E1 structured services — — — —
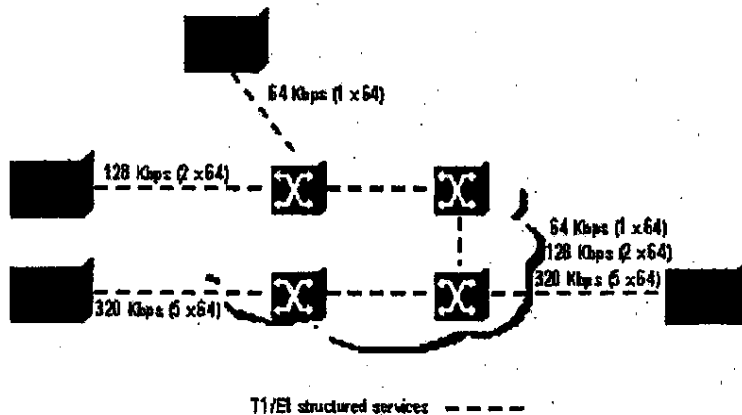
Types of Signaling

There are two types of signaling associated with T1 and T1 circuit emulation: channel associated signaling (CAS) and common channel signaling (CCS). CAS is in–band signaling and CCS is out–of–band signaling.

You can typically use CAS to transparently transmit proprietary signaling protocols that use the ABCD bits of a T1 frame. On Cisco ATM switches configured for CAS, the ABCD bits will not be changed or acted upon, which provides the extension of proprietary signaling across the ATM network.

Note: You need to use structured CES if you are providing CAS.

You can also use CAS for on–hook detection on Cisco enterprise ATM switches. CAS with on–hook detection is supported for (56k/64k) DS0 circuits only. CES–IWF mandates that voice be transmitted as CBR ATM traffic, a method that forces the ATM switch to reserve bandwidth for the voice circuit even when there is no user traffic (voice) to be sent. So when there is no voice communication, AAL1 cells are still using bandwidth on the ATM link sending "NULL" data. The solution for minimizing the "NULL" cells on ATM links is to not send "NULL" cells if there is no voice communication.

8510–MSR implements on–hook detection as follows:

* Detect on–hook/off–hook. This requires the ABCD pattern to be configured in a way that indicates the on–hook signal that the CPE is using. In other words, the CPE dictates how this must be configured on the 8510–MSR; the CPE and the 8510–MSR must be configured the same.
* Stop sending AAL1 cells when on–hook is detected.

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- Indicate to the ATM switch that has the destination CBR circuit that it is in on–hook mode. This prevents the remote switch from declaring a loss of cell delineation (LCD) if no cells (data or "NULL") are received.
- Start sending AAL1 cells when on–hook is no longer detected (that is, when the ABCD pattern coming from the CPE equipment no longer matches the configured pattern).

Note: CAS with on–hook detection on the 8510–MSR can be used only if the CPE equipment supports CAS and can detect on–hook state.

Robbed bit signaling on Cisco Enterprise switches and routers is configured using the **ces dsx1 signalmode robbedbit** command. CAS and on–hook detection is configured using the **ces circuit** command.

CES ports on Cisco Enterprise switches support CAS, which "robs" one bit out of every channel in the sixth T1 frame in order to transmit signaling messages. CAS is also referred as "robbed bit signaling"; robbed bits are referred to as AB (in SF) or ABCD (in ESF) bits. CAS can be used for on–hook detection, which allows for better utilization of network resources at times when there is no user traffic.

CCS uses the entire channel of each basic T1 frame for signaling. An example of CCS is ISDN PRI, where entire the 64k D channel is used for signaling. CCS is not supported natively on Cisco LightStream and Catalyst ATM switches; however, the 8510–MSR (or 8540–MSR, LS1010) together with the new Cisco VSC2700 signaling controller can provide similar function using Simple Gateway Control Protocol (SGCP). This solution is implemented by 8510–MSR propagating the signaling DS0 channel to the VSC2700 gateway, which is capable of understanding multiple signaling protocols and signaling back to the 8510–MSR the ATM address to which the 64k soft PVC needs to be set up. Once an end–to–end circuit is established, the 8510–MSR is responsible for transfer of user traffic. By doing bandwidth–on–demand in such a way, the total number of required interfaces is reduced and the need for tandem PBX can be eliminated.

CES can be implemented using PVCs or soft PVCs. PVC requires manual configuration on each ATM switch in the ATM cloud; soft PVC relies on ATM signaling to establish the VC, and VC configuration is required on only one ATM switch. Another advantage of soft PVC is that the VC can be re–routed in a case of link failure.

On the other hand, PVCs are more stable because they don't depend on any dynamic components, like ATM signaling. If an ATM network has ATM switches that do not support ATM signaling, PVCs are the only option. It is very important to note that clocking is of significant importance to CES. The receiving T1 stream on a remote CPE must have the same clocking characteristics as the transmitting T1 stream. To ensure this, the ATM network must not significantly change clock characteristics. To achieve this, you can use one of several clocking schemes discussed in Clocking in Circuit Emulation.

Frame and Cell Processing

As previously mentioned, CES–IWF converts T1 frames to AAL1 ATM cells. The CES–IWF function is implemented on the CES port adapter module (PAM) of an ATM switch. In simpler terms, the T1 frame comes in CES PAM, where it gets buffered and segmented into 47–byte cells. One byte of AAL1 header is added to each 47–byte cell, forming a 48–byte cell. Five bytes of ATM cell header is added and the 53–byte cell is switched to the outgoing ATM interface. Depending on the type of CES service, additional steps might also occur. At the receiving end, the process is reversed.

Types of CES

CES services can be differentiated in two ways: synchronous versus asynchronous, and structured versus unstructured.

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Synchronous versus Asynchronous

- Synchronous service assumes that synchronized clocks are available on each end. Therefore, no clocking information is transported in the ATM cell. Propagation of the clock source throughout the network is required.
- Asynchronous service sends clocking information in ATM cells to the remote end of the circuit. Clocking information sent in the ATM cell is called Synchronous Residual Time Stamp (SRTS).

The SRTS value is specified using four bits and is sent per eight cells using one bit in the AAL1 header for every odd sequence numbered cell. The reference clock must still be propogated throughout the network.

Structured versus Unstructured

- Unstructured service (also called "clear channel") utilizes the entire T1 bandwidth, (meaning there is one single channel). The ATM switch doesn't look into the T1, but simply reproduces a stream of bits with clocking from the receiving port to the target port.
- Structured service (also called *channelized T1* or *cross–connect*) is designed to emulate point–to–point Fractional T1 (Nx64k) connections. This allows the T1 to break into multiple DS–0 channels towards different destinations. More than one circuit (AAL1) entity will share the same physical T1 interface. To provide this service, AAL1 is capable of delineating repetitive fixed–size blocks of data (block size is the integral number of octets, where an octet represents a 64k channel).

For a block size larger than one octet, AAL1 uses a pointer mechanism to indicate the start of the structure block. A convergence sub–layer (CS) indicator (CSI) bit in the AAL1 header set to 1 indicates structured service, while a CSI bit of 0 indicates unstructured service. So, if CSI = 1, the pointer identifying the beginning of the structure is inserted in the CSI field of even numbered cells. Using this pointer, the receiving switch will know how to convert the AAL1 cells into the appropriate fractional T1.

On Cisco Enterprise switches and routers, this type of circuit emulation service is configured using the ces aal1 service command.

Clocking in Circuit Emulation

Clocking is so important for CES. This section focuses on two clocking concepts:

- clocking modes
- clock distribution

Clocking modes define multiple ways to achieve the same clock in the transmitting and receiving ends of a T1 circuit end–to–end. This means that the T1 stream that PBX1 transmits has same the clocking characteristics as the T1 stream that PBX2 receives, and vice versa.

Some clocking modes (like synchronous and SRTS) rely on a reference clock source that needs to be the same throughout the network. For those clocking modes, clock distribution of the reference clock source is required.

The following sections discuss various clocking modes and methods of clock distribution. We will also list advantages and disadvantages of each clocking mode.

Clocking Modes

There are three major clocking modes:

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- Synchronous clocking
- SRTS
- Adaptive clocking

It is of significant importance to remark that accurate clocking distribution can be done with hardware support. The Phased Lock Loop (PLL) chip used to do this is only present in the ASP–PFQ card on the LS1010 and RP equipped with network clock modules on the 8540–MSR. Using those modules is *highly* recommended when designing ATM networks that use CES. Refer to Clocking Requirements for the LightStream 1010, Catalyst 8510–MSR and Catalyst 8540–MSR for more information.

Synchronous Clocking

Transmit clock frequency is produced by an external source (also called the primary reference signal [PRS]). PRS is distributed throughout the ATM network so that all devices can synchronize to the same clock.

Supports both structured and unstructured CES services.	Requires network clock synchronization.
Exhibits superior wander and jitter characteristics.	Ties CES interface to the PRS; in case of PRS failure, the circuit might be degraded
	Other interface (PRS line at T3E3 or ATM interface used to derive the network clock on the ATM switch) might be affected in case of PRS failure because Cisco ATM switches use that derived clock as a system clock for all interfaces in the switch, not just interfaces involved with CES.

SRTS

SRTS is an asynchronous clocking method. SRTS measures the difference between the service clock (received on the CBR interface) and the network–wide reference clock. This difference is the Residual Time Stamp (RTS). The RTS is propagated to the remote end of the circuit in the AAL1 header. The receiving end reconstructs the clock by adjusting the reference clock by the RTS value. Keep in mind that the reference clock needs to be propagated throughout the network; in other words, the switch needs to be capable of distributing the clock.

Advantages	Disadvantages
Conveys an externally–generated user (such as PBX, MUX, or CODEC) clocking signal throughout the ATM network, providing an independent clocking signal for each CES circuit.	Requires network clock synchronization
Useful in networks that have multiple external clock sources.	Supports only unstructured CES services.

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CSCO 0058-1821

	Exhibits moderate wander and jitter.

Adaptive Clocking

In adaptive clocking, the source CES IWF simply sends the data to the destination CES IWF. The destination CES IWF writes data to the segmentation and re-assembly (SAR) buffer and reads it with the local T1 service clock. The local (interface) service clock is determined from the actual CBR data received.

The level of the SAR buffer controls the local clock frequency by continuously measuring the fill level around the median position and feeding this measurement to drive the Phase Lock Loop (PLL), which in turn drives the local clock (transmit clock). So the transmit clock frequency is modified to keep the re-assembly buffer depth constant. When CES IWF senses that its SAR buffer is filling up, it increases the transmit clock rate. When CES IWF senses that the SAR buffer is emptying, it decreases the transmit clock rate.

The proper choice of buffer length can prevent buffer overflow and underflow and, at the same time, control delay (greater buffer size implies greater delay). The buffer length is proportional to the maximum cell delay variation (CDV), which the user can configure on Cisco ATM switches. The network administrator can estimate what the maximum CDV should be by summing the CDV of each network device in the circuit path. The sum of the measured CDVs that each piece of equipment introduces must be smaller than the maximum CDV configured. If not, underflows and overflows will occur. On Cisco equipment, you can view the actual CDV with the show ces circuit interface cbr x/y/z 0 command if you are using unstructured service.

Does not require network clock synchronization.	Supports only unstructured CES.
	Exhibits poorest wander characteristics.

On Cisco Enterprise products, this clocking mode is configured using the ces aal1 clock CBR interface command.

Clock Distribution

Synchronous and SRTS clocking modes require distribution of the PRS throughout the network. If you use one of these two clocking modes, you will first have to choose which clock source will serve the role of PRS and design a network-level clock distribution topology.

Things to consider when deciding on the PRS is clock accuracy and position of PRS in network:

- Clock accuracy is determined by the stratum level. Typically, the service provider will provide better accuracy clock (stratum1 or 2) than local oscillators on equipment (ATM switches or CPE equipment). In absence of the service provider clock (which is often the case with video applications), choose the device with the most accurate local oscillator as the PRS.
- Another thing to consider when deciding on PRS is the position of the devices that will be the PRS in the network. This is typically the case if you have multiple potential clock sources with the same level of accuracy, or if you have a very large ATM network. You need to choose the position of the PRS so that it minimizes the number of network devices that the clock needs to traverse from the PRS to the edge devices because the clock gets degraded as it traverses network nodes.

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Once you choose the PRS, the next decision is to find the best way to propagate the reference clock. The network distribution topology must be loop−free; in other words, it needs to be a tree structure or a set of trees. The clock distribution topology should also impose a strict hierarchical ordering of the active components of the topology based on the stratum level of the various network equipment. That is, if there are two equal−hop paths to choose from, choose the one that goes through the more accurate equipment (lower stratum).

See the network clock distribution tree in the following illustration:

—— Primary clock distribution tree
—— Secondary clock distribution tree
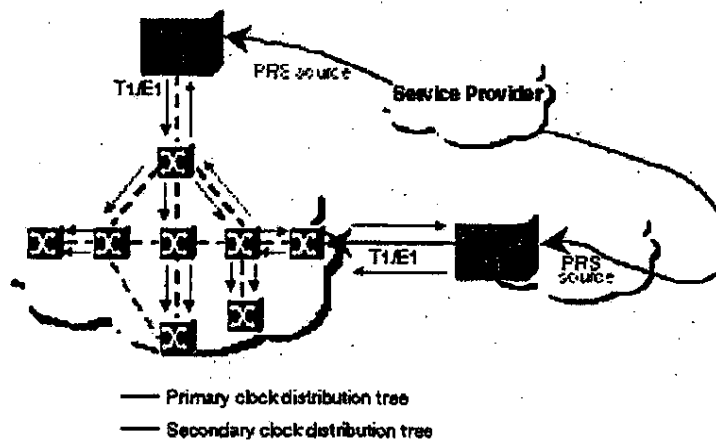
Oscillators on the 8510−MSR and the PA−A2 on the Cisco 7200 can provide stratum 4 clock. The Catalyst 8540−MSR with the optional network clock module can provide stratum 3 clock source. Without the optional network clock module, the Catalyst 8540−MSR provides stratum 4 clock. If the Catalyst 8540−MSR is equipped with the optional network clock module, the T1/E1 Building Integrated Timing Supply (BITS) port can also be used as a clock source.

Once you decide how the clock distribution tree will look for the entire network, you need to implement it on each device, including Cisco ATM switches (that is, internal clock distribution within the ATM switch needs to be configured). Internal clock distribution on Cisco Enterprise ATM switches and routers can be configured using these two commands: ces dsx1 clock source and network−clock−select.

Use the network−clock−select command to specify which clock source (interface or internal oscillator) to use as the system clock on the ATM switch. On Cisco products supporting CES, you can specify multiple network clock sources and their priority for redundancy purposes. If nothing is configured, the 8510−MSR and Catalyst 8540−MSR use the local oscillator on the ATM switch processor (ASP) or route processor (RP) as the system clock by default. All interfaces that are configured to use network−derived clock use the clock source specified in the network−clock−select statement as a transmit clock on that interface. All ATM and CBR interfaces on the 8510−MSR and Catalyst 8540−MSR are configured to be network−derived by default. So too are the ATM and CBR interfaces on the PA−A2 port adapter. The ces dsx1 clock source statement specifies for each individual interface which clock source to use as a transmit clock on that interface. The following options are available:

  • Network−derived: As previously mentioned, if the interface is configured to be network−derived, the clock source specified by the network−clock−select statement is used as the transmit clock on that interface (that is, the transmit clock is derived from the source provided by the ATM switch internal clock distribution mechanism). Use the show network−clock command to find out which clock

source is being used. Network-derived is the default setting on all Cisco ATM switch interfaces.
- Loop-timed: Transmit clock on the interface is derived from the clock source received on the same interface. This mode can be used when connecting to a device with a very accurate clock source.
- Free-running: Transmit clock on the interface is derived from the port adapter's local oscillator, if one exists. If the port adapter does not have a local oscillator, the oscillator from the processor board is used. In this mode, the transmit clock is not synchronized with any receive clocks in the system. This mode should be used only if synchronization is not required, like some LAN environments.

Configuring CES

Before You Configure

Before implementing and configuring CES, you should make the following decisions based on the information discussed in this document so far:

1. Which type of service do you need (unstructured or structured)?
2. Which clocking mode will you use (synchronous, SRTS, or adaptive)?
3. If you decide to use synchronous or SRTS clocking mode, which device in your network will provide clock source to the rest of the network? Do you have devices equipped with PLLs? Do you plan to derive clock from interfaces that do not support it? Refer to Clocking Requirements for the LightStream 1010, Catalyst 8510-MSR and Catalyst 8540-MSR for more information.
4. How do you plan to distribute clock source throughout the network so that you have a loop-free clock tree while still preserving the clock characteristics of the PRS as much as possible?
5. Determine the T1/E1 characteristics (such as linecode and framing) defined at the CPE or line provided by the service provider.
6. Determine the distance between the CES PAM and the closest device that regenerates the T1/E1 signal (this can be CPE or CSU/DSU, for example). If the distance is greater than 110 feet, you need to change the lbo configuration on the CES PAM.

Sample Configurations

Here are some examples of configurations with

- T1 Unstructured CES with Synchronous Clocking and Soft PVCs
- T1 Unstructured CES using Synchronous Clocking and PVCs
- T1 Unstructured CES with SRTS Clocking and Soft PVCs
- T1 Unstructured CES with Adaptive Clocking and Soft PVCs
- T1 Structured CES with Synchronous Clocking and Soft PVCs
- T1 Structured CES with soft PVCs and Channel Associated Signaling (CAS)
- T1 Unstructured CES with Adaptive Clocking and Soft PVCs over PVP

Verifying Configurations

You can use the show commands explained below to verify the configuration. The output from these show commands from all involved devices is also helpful to Cisco Technical Assistance Center (TAC) engineers if you have to open a case.

Command	Description
show version	Displays the current version of Cisco IOS. You'll need to know the IOS version when

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	verifying supported features or searching for bugs on CCO.
show run	Displays the current running configuration.
show int cbr *x/y/z*	Displays interface status.
show ces int cbr *x/y/z*	Displays line state and all T1/E1 error counters (the definition of all counters are in RFC 1406). It also shows port and service configuration. Make sure that the line-code and framing configured on the switch is the same as configured on the CPE device.
show ces circuit int cbr *x/y/z n*	Where *n* is the channel ID (0 = unstructured; 1–24 = structured). Displays information about underflows and overflows. Note: There will always be some underflows/overflows as a circuit is coming up, so be sure to look at the relative increase and not the absolute number. Underflows and overflows indicate clocking slips.
show ces address	Displays the address and the VPI/VCI pair to be used if you want to terminate the soft PVC on this CBR port. You must first configure the CES circuit to view this information. If you have structured service with multiple channels, there will be multiple addresses and VPI/VCI pairs.
show ces stat	Displays the status of all circuits.
show network-clock	Displays the configuration of network clock source preferences and indicates if the active clock source is indeed the one that is configured to be preferred.
show log	Displays any past clock switch-over events or interface events. To benefit from the log, you should configure timestamps on your switch and enable logging. You can configure this in the global configuration mode using the following commands: • **logging buffered** • **service timestamps log date msec** • **service timestamps debug date msec**

Basic Troubleshooting

Some of the most common problems encountered with CES are listed below, along with troubleshooting tips.

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The Circuit is not Coming up or the CPE is in Alarm

1. Make sure that you are using the correct cable. Refer to Cabling the CES Port Adapter for pinouts of all CES ports for the 8510-MSR and PA-A2.
2. Make sure that the framing and line-code are the same on the CPE and the switch. Use the **show ces interface** *x/y/z* command to see how the switch is configured. To change the framing and line-code, use the **ces dsx1 framing** and **ces dsx1 linecode** commands.
3. Make sure that all hardware is in working condition, such as the port on the CPE, and the cable and port on the switch. You can troubleshoot hardware problems by replacing one component at a time or by using loopbacks to localize the problem. You can use user-configurable loopbacks to do this by using the **ces dsx1 loopback** command for CBR interfaces and the **loopback** command for ATM interfaces. It may be necessary to make an external loopback plug on the CBR T1 interface or to externally loop the transmit cable to the receive cable on the ATM interface. Loopback tests are useful in general when troubleshooting CES problems.
4. Check the alarm indicators:

   ♦ A red alarm indicates failure on a local device.
   ♦ A yellow alarm indicates remote-end failure.
   ♦ A blue alarm is declared when all one pattern is detected (AIS). CPE equipment connected to the port in blue alarm should see this condition as loss of signal (LOS). A blue alarm often indicates that there is a problem in the ATM network and/or the connection has possibly gone down.
   ♦ On the 8510-MSR, LED states indicate different alarms.

5. Measure the distance between the CPE (or the closest signal regenerating device, such as CSU/DSU) and the CBR port on the CES PAM. The default line build out is 0 -110 feet. If your distance is longer, use the **ces dsx1 lbo** command to increase the default value. The maximum supported distance is about 700 feet.

The Circuit is Experiencing Clocking Slips

To determine if there are clocking slips on a circuit, check for underflows and overflow using the **show ces circuit interface cbr** *x/y/z n* command, where *n* is circuit ID (always 0 for unstructured CES).

As AAL1 cells are received on an ATM interface, they are stored in the SAR buffer, which resides on the CES PAM. Then, the *framer* will take the AAL1 data from that buffer, strip all the headers out, form a T1 frame, and transmit it on the CBR interface. The size of this buffer is implementation-dependant and is chosen to accommodate specific end-to-end maximum CDV while avoiding excessive delay. If there is a slight clocking difference between the device doing segmentation (conversion from T1 frames to ATM cells) and the device doing re-assembly (conversion from ATM cells to T1 frames), the SAR buffer will get either underflows or overflows.

   • *Overflows:* The segmentation side is faster than the re-assembly side, resulting in dropped frames.
   • *Underflows:* The segmentation side is slower than the re-assembly side, resulting in repeated frames.

PBX Reporting Framing Errors or Carrier Drops

Check all ATM links for cyclic redundancy check (CRC) or other errors. Use the **show controller atm** and **show interface** commands.

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Users Hear Static or Clicking on Phone Calls

Check the clocking of all ATM and CES devices. Try adaptive clocking and see if the problem ceases.

You Suspect a Bad Reference Clock

1. Reference clock can be degraded if the original clock source provided by the service provider has problems, if the ATM network degrades the clock, or if clock distribution throughout the network is mis-configured.
2. Try adaptive clocking. If that solves the problem (while SRTS and synchronous were experiencing the problem), you can conclude that your suspicion was accurate.

There are Clocking Problems in a Network with PA-A2

The ATM interface on the PA-A2 also uses network-derived clocking by default on the ATM uplink port. By default, the clock source is atm clock internal, which is the equivalent of network-derived. By network-derived, we mean that we use the highest-priority active clock source, as displayed in the output of the **show network-clock** command.

Use the **no atm clock internal** command to set the transmit clock to the line. This configuration is equivalent to a loop-timed transmit clock source, in which the transmit clock source is derived from the clock source received on the same interface.

Related Information

- ATM Support Pages
- Technical Support – Cisco Systems

Updated: May 11, 2005   Document ID: 10423

Cisco – An Introduction to Circuit Emulation Services

EXHIBIT F

REDACTED

EXHIBIT G

REDACTED

EXHIBIT H

REDACTED

EXHIBIT I

REQUEST FOR PROPOSAL

CONTROL NO. LJ-94-012-FSM

November 29, 1994

ASYNCHRONOUS TRANSFER MODE (ATM)

SWITCHING SYSTEM

Req 4.4.2-4   In the event of SAR-SDU loss or starvation condition, the IWF shall generate the appropriate AIS (all "ones" pattern for DS1; and DS3 AIS as specified in ANSI T1.107).

Req 4.4.2-5   The DSn (DS1 and DS3) service clock provided to the AAL1 User entity shall meet the appropriate specifications for jitter and line rate tolerance specified in ANSI T.102 and T1.403 (for DS1) and T1.404 (for DS3).

Req 4.4.2-6   For the asynchronous-mode DSn (DS1 and DS3) CE, the IWF shall support the SRTS (Synchronous Residual Time Stamp) method for asynchronous clock recovery as specified in ITU Recommendation I.363 and ANSI T1.630.

Req 4.4.2-7   For the synchronous-mode DS1 CE, the IWF shall support a synchronous timing method that will derive timing from the network traceable to the Primary Reference Clock (Stratum 1).

For the Structured DSn (Nx64 Kb/s and NxDS1) circuit emulation:

Req 4.4.2-8   The ATM switch's IWF shall use the Structured Data Transfer Mode (SDT) as defined in ITU Recommendation I.363 and ANSI T1.630.

For structured data transfer CBR services, the switch shall provide the following ALL1 processing:

DS1:

Req 4.4.2-9   The ATM switch's IWF shall support octet-structured Nx64 Kb/s service with 8 KHz integrity.

Req 4.4.2-10   The IWF shall allow bandwidths from N=1 (single DS0) to N=24 (1.536 Mb/s) in increments of 64 Kb/s.

Req 4.4.2-11   The N channels in the Nx64 Kb/s need not be contiguous. The IWF shall deliver them in the same order as they are received.

Req 4.4.2-12   For the NX64 Kb/s SDT, the IWF shall introduce controlled slips to deal with buffer overflow/underflow conditions.

Req 4.4.2-13   The IWF shall support non-channel associated mode in order to provide transparent (clear) NX64 Kb/s connections.

DS3:

Req 4.4.2-14   The IWF shall support NxDS1 structured data transfer with N varying from 1 to 28.

Req 4.4.2-15   The N channels in the NxDS1 need not be contiguous. The IWF shall deliver them in the same order as they are received.

Req 4.4.2-16   The IWF shall provide, to the CPE using the Nx64 Kb/s and NxDS1 SDT, a clock traceable to a Primary Reference Source (Stratum 1). The IWF shall provide the clock through the circuit access interface.

EXHIBIT J

Lucent Multiservice Switching
Technical Brief

Increase profits from legacy TDM services

Use Circuit Emulation Services (CES) to add TDM services to an existing multiservice network without interrupting service or requiring end users to upgrade equipment.

Service providers can use Circuit Emulation Service (CES) support to:

- Quickly add new services to their existing networks with minimal capital and resource investments

- Generate new revenues faster with point-and-click provisioning of leased-line and other TDM services

- Reduce costs by consolidating access lines and eliminating redundant digital cross-connect system (DCS) equipment

- Simplify network management by supporting more services on fewer managed network elements

Lucent Technologies
Bell Labs Innovations

TFI C2945861

This technical brief describes Circuit Emulation Services (CES), its implementation on Lucent multiservice switches, and potential applications. It is intended for network designers who are considering using CES to increase service density, flexibility, and bandwidth efficiency on their Lucent multiservice networks.

Contents

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Introduction

Operating expenses can account for up to 70% of the costs associated with offering network voice, video, and data services. Today, service providers are reducing those costs by replacing individual voice and data networks with a single network capable of simultaneously supporting voice, video, and data services. Operating fewer networks means managing fewer network elements — lowering equipment costs and streamlining network management.

By consolidating more services onto a single network, providers can reduce the need to purchase and maintain duplicate access and transport bandwidth to service multiple single-service networks. Instead, providers can take advantage of ATM's statistical multiplexing to consolidate those services on one set of bandwidth lines without sacrificing service quality.

Service providers can also consolidate services onto a single management system for end-to-end network management, streamlined service provisioning, and rapid fault resolution for all services. By simplifying new service deployment and provisioning, service providers can enjoy more flexibility to respond to changing market demands.

Circuit emulation (CE) imitates a traditional TDM network by transmitting incoming voice, video, and data traffic from TDM devices at a constant bit rate (CBR) through the ATM network. As a fully developed, standards-based transport protocol, ATM provides the robust QoS and reliable transport service providers need to confidently add legacy TDM services to their multiservice mix.

Today, providers use CE in strategic areas of their existing multiservice networks to increase the profitability of their private-line services; transport voice, video, and legacy TDM traffic; reduce their dependence on digital cross-connect equipment (DCS); and relieve congestion on their voice networks. Each application offers unique opportunities for reducing costs and increasing profits.

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What is circuit emulation (CE)?

Circuit emulation (CE) imitates traditional leased-line services by transmitting incoming voice, video, and data traffic from TDM devices at a constant bit rate (CBR) across the ATM network. The basic circuit emulation standard, defined in *AF-VTOA-0078.000: Circuit Emulation Service Interoperability Specification, Version 2.0*, describes how service providers can use CES to connect two TDM devices through an ATM network.

How it works

CES uses the ATM network to transparently transport any type of TDM traffic. The two TDM devices perform any necessary traffic structuring before transmitting the data to the ATM network. When it receives incoming TDM traffic stream, the ATM network slots the structured traffic into a CBR virtual circuit.

The originating TDM device encodes the TDM voice, video, and data traffic using Pulse Code Modulation (PCM), Adaptive Differential Pulse Code Modulation (ADPCM), and other encoding and compression mechanisms — just as if it were sending that traffic over a traditional TDM network. At the ingress ATM switch, the CES interworking function uses ATM Adaptation Layer 1 (AAL1) to package incoming TDM traffic into ATM cells. During the process, the switch carefully preserves the order and timing information for the TDM cells. The ATM switch then transports the cells in order over CBR permanent virtual circuits (PVCs) or switched virtual circuits (SVCs) through the ATM network. When it receives the outgoing cell stream, the egress ATM switch recreates the original TDM bit stream and transmits it to the destination TDM device. (See Figure 1.)
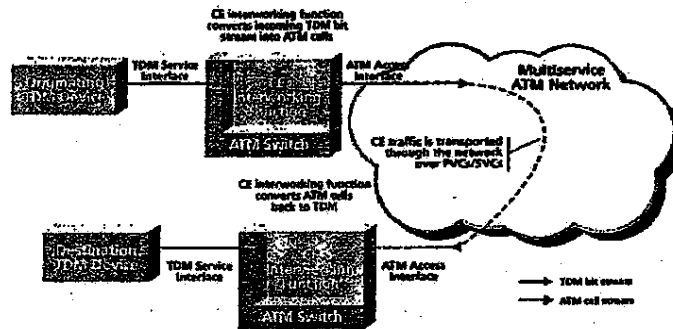
Figure 1 — ATM networks use circuit emulation to support legacy TDM services.

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TDM devices at both ends of the point-to-point service detect basic CES like a private leased-line service. Consequently, service providers can use CES to migrate legacy TDM services to an ATM network without changing their TDM and PBX equipment. Customers can continue to use their familiar TDM devices to access leased-line and other legacy TDM services — even after the service provider migrates their TDM services to ATM.

With this straightforward approach to supporting TDM services over ATM, CES enables service providers to seamlessly migrate legacy TDM services to a more efficient ATM network. CES can help reduce equipment and operating costs by consolidating more services onto the ATM network.

Basic circuit emulation (CE) service types

The baseline CE standard describes two types of CES: unstructured and structured.

Unstructured CES connections treat all incoming traffic on a DS1/E1 or DS3/E3 TDM service interface as a continuous bit stream, transmitting it all over a single ATM CBR circuit. Service providers typically use unstructured CES, also known as 'clear-channel' or 'clear-pipe' services, to emulate traditional point-to-point leased-line services. In this scenario, the ATM virtual circuits substitute for physical links in a TDM network.

Structured CES connections break down incoming TDM bit streams into multiple DS0s based on time-multiplexed user data and other internal byte structure information in the TDM transmission facility. Although the baseline standard does not fully explore it, service providers could use structured CES to exploit ATM's flexible and efficient bandwidth management, while matching the reliability and QoS of traditional TDM network services. For example, the CE interworking function in the ATM switch could map individual DS0s from structured CES onto separate ATM CBR circuits. This would enable service providers to support multiple applications for each structured CES connection. Structured CES can improve the overall bandwidth efficiency of leased-line services.

What to look for in a CES implementation

Service providers need a standards-based CES implementation that leverages existing equipment to protect current investments and help reduce the capital costs associated with migrating TDM services to ATM. These providers need a carrier-grade CES implementation that:

• Seamlessly migrates legacy TDM services to ATM to help protect current service revenues

• Quickly provisions new leased-line services and requires minimal retraining for operations personnel managing the migrated service

• Offers reliability and QoS support comparable to the reliability and QoS of the legacy TDM solution

• Scales to support more users on existing multiservice equipment

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Applications

Service providers can use CES to support a wide range of applications, including:

• Seamless migration of TDM-based private leased line services to the ATM network

• Transport of voice, video and legacy TDM traffic

• Reduced dependence on DCS equipment

• Consolidation of multiple access lines for more efficient ATM transport

Supporting private line services

Private leased-line services net service providers $30 billion annually[1] and are still growing – making them a dependable source of income for service providers worldwide. Yet traditional private-line services carried over legacy TDM networks are neither bandwidth-efficient nor cost-effective. Worse, with competition steadily driving down prices, service providers must either reduce the cost of operating leased-line services or watch profits from these services decrease.

Service providers can use the circuit emulation support on the Lucent CBX 500® and CBX 3500™ Multiservice WAN Switches, and PacketStar® PSAX Multiservice Media Gateway switches to migrate legacy TDM-based private line services to their more efficient Lucent multiservice network.
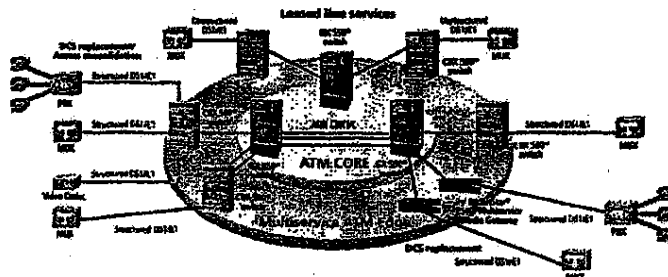
Figure 2 — Service providers use circuit emulation to migrate legacy TDM-based leased-line services to a more efficient ATM network.

Using unstructured CES to migrate TDM-based leased line services to ATM Networks

Service providers can use unstructured CES, also known as 'clear-channel' or 'clear-pipe' services, to gradually migrate TDM-based leased-line services to their packet-based ATM networks. In unstructured CES applications, the ATM switch treats all incoming traffic on a DS1/E1 or DS3/E3 TDM service interface as a continuous bit stream, transmitting all of it over a single ATM CBR circuit. This approach mimics traditional point-to-point leased-line services.

[1] Insight Research Corporation. *Private Line Services 2003-2008: A Market Research Report*

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Using structured CES to support multiple applications on Leased Lines

Alternatively, service providers can use structured CES to map individual DS0s onto separate ATM CBR circuits — enabling multiple application support for each leased-line customer.

ATM's robust QoS support and reliability provides service availability and quality for CES connections. Meanwhile, because ATM networks operate more efficiently than legacy TDM, service providers can support more services at a lower cost using their existing transport networks.

Efficiently Transporting voice, video, and legacy TDM traffic

Service providers can also use the structured CES support in the Lucent CES solution to transport voice, video, and legacy TDM traffic over a single ATM virtual circuit.

Supporting a mix of voice, video and data services

Service providers can support toll-quality voice on the same packet-based ATM network that transports data so efficiently. One ATM circuit can carry voice, video, data, or a combination of the three — providing the flexibility needed to respond to changing customer demands.

Service providers can use structured CES to transmit all voice, video, and data traffic from a given connection. Or they can split out the data traffic from CES connections for more efficient transport using AAL5.

Consolidating access lines to conserve transport bandwidth

Structured CES can be used to conserve bandwidth by consolidating multiple access lines onto a larger ATM circuit for more efficient transport than TDM can offer. TDM networks reserve the entire bandwidth for each circuit, regardless of whether all time slots in that circuit are being used. As a result, the typical TDM network is less than 40% utilized.

In contrast, structured CES does not allocate bandwidth across the ATM network for idle timeslots. Instead, the switch reserves that bandwidth for active DS0s. By only allocating bandwidth to circuits when they need it, ATM networks can use the same amount of bandwidth to support much denser services. By some estimates, ATM can increase service density to twice that of TDM networks. As a result, service providers can use the Lucent CES solution to support more customers on their existing systems — further reducing the cost of private-line services.

Sharing excess bandwidth with lower priority services

Service providers can use the dynamic bandwidth capabilities on the PacketStar® PSAX Enhanced DS1 Circuit Emulation Module to make bandwidth on idle CBR circuits available to other ATM applications. They can use on-hook and off-hook detection to determine whether a customer is currently using a particular CBR service. If the customer's connection is in the on-hook or idle state, the ATM network could temporarily release the bandwidth for that CBR service to support bursty ABR and UBR traffic. Channel Associated Signaling (CAS) maintains both the ATM virtual circuit and bandwidth reservation for that customer's CBR service, however, and immediately restores both when it detects that the customer's connection is again active.

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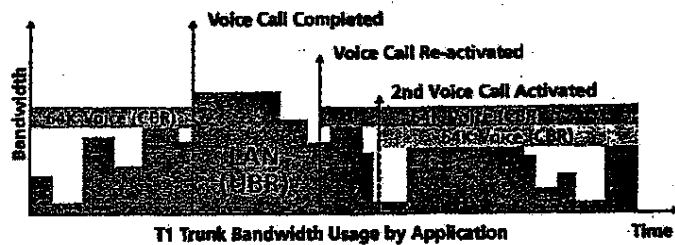
Figure 3 — The PacketStar® PSAX Multiservice Media Gateways can use CAS to dynamically release unused CBR bandwidth to other ATM applications – and to reclaim that bandwidth when the end user requires it.

Dynamic Bandwidth CES gives service providers a potential source of additional bandwidth to handle ABR and UBR traffic bursts when voice loads are relatively light, without compromising service quality for the CES traffic.

Reduce dependence on DCS equipment

In structured CES applications, the ingress ATM switch maps individual DS0s to one or more ports based on their time slots. This allows you to map multiple DS0s from one CES connection to different ATM PVCs or SVCs for transport to separate destinations. You can consolidate individual DS0s from multiple CES connections onto a single ATM PVC or SVC for transport to a shared destination.

By providing flexible mapping capabilities similar to those provided by a traditional DCS, structured CES helps you shrink or eliminate the separate layer of DCS equipment in your access network. Over time, this can greatly reduce your operating costs by streamlining equipment needs and simplifying overall network management.
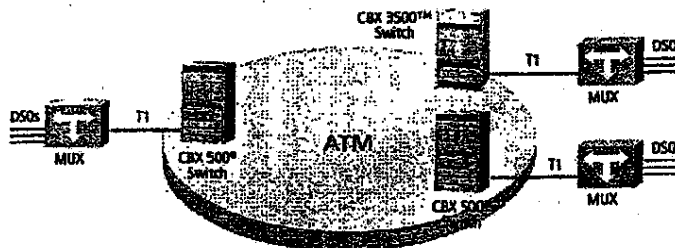
Figure 4 — Service providers can use structured CES to consolidate multiple access services for more efficient transport through the core.

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By supporting flexible mapping capabilities similar to those provided by DCS equipment, structured CES can help service providers shrink or eliminate the separate layer of DCS equipment in their access network. Over time, this can greatly reduce costs by streamlining equipment needs and simplifying overall network management.

Consolidate multiple access lines for efficient ATM transport

You can use structured CES to map multiple access lines onto shared ATM circuits for more efficient transport. TDM networks reserve the entire bandwidth for each circuit, even if all the circuit's time slots are not in use. As a result, the typical TDM network utilizes less than 40% of its bandwidth. In contrast, structured CES allocates bandwidth only to active DS0s — and does not transmit idle circuits across the ATM network. By limiting transmissions to active circuits, your ATM network can support denser services using the same bandwidth resources.

With the Lucent CES solution, you can increase your leased-line service density up to twice that of your TDM network. Supporting more customers on your existing network can increase your service revenue opportunities and lower the cost of operating private line and other legacy TDM services. With standards-based CE support, efficient bandwidth use, flexibility, and service density, the Lucent CES solution can help you optimize your Lucent multiservice data network to support profitable leased line services and reduce the costs associated with other legacy TDM services.

Implementing CES in the Lucent multiservice network

The Lucent CBX 500® and CBX 3500™ multiservice switches, and PacketStar® PSAX Multiservice Media Gateway support standards-based circuit emulation.

The Lucent CES solution is designed for the carrier environment and addresses challenges in migrating, provisioning, delivering, and scaling legacy TDM services.

Standards-based implementation streamlines the entire migration

CES can be quickly deployed in existing Lucent multiservice networks by installing a CES module in any existing CBX 500® switch, CBX 3500™ switch, or PSAX Gateway. Once the hardware is installed, a software upgrade may be needed to implement the circuit emulation service. Then service providers can transfer services from the legacy TDM network by directing traffic from their TDM devices to the new CES module. This straightforward migration process helps provide seamless service support before, during, and after the migration.

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An end-user TDM device cannot distinguish between a TDM-based leased-line service and a standards-based CES leased-line service. Consequently, service providers can migrate TDM-based services as quickly or as gradually as they like, without interrupting services or requiring end users to upgrade their equipment. This helps protect existing TDM service revenues and maintain service quality during the migration process. Avoiding end-user upgrades helps keep the entire migration transparent to customers.

End-to-end service provisioning speeds service deployments

The integrated *Navis* iOperations network management suite offers end-to-end service provisioning for all CES-based voice and leased-line services. Service providers can rapidly provision new CES circuits with *Navis* iOperations software using the same processes used to provision ATM and Frame Relay services today. This rapid service provisioning speeds service rollouts to help shorten revenue cycles. By extending current operational procedures to incorporate new CES services, *Navis* iOperations software helps minimize the training costs associated with implementing CES. Using one network management system to manage all ATM, Frame Relay, CES, and IP services carried over their Lucent multiservice network means that service providers can significantly reduce their operating costs.

Robust reliability and QoS supports TDM services

Before migrating to a multiservice network, service providers must verify that the new data network will provide the QoS and reliability their customers have come to expect from the legacy TDM network.

ATM-level QoS control provides high quality services

The CBX 500®, CBX 3500™ switches, and PSAX Gateways can provide the QoS support essential to a carrier-grade multiservice network and implement robust ATM QoS and traffic management capabilities so migrated TDM services deliver the quality end users expect.

Reliability features ensure service continuity

The CBX 500®, CBX 3500™ switches, and PSAX Gateways incorporate field-tested, carrier-class hardware and software reliability features to match the reliability provided by legacy TDM networks.

Lucent platforms provide proven reliability to support private line over ATM services.

CBX 500® and CBX 3500™ Multiservice Switches

The CBX 500® and CBX 3500™ switches incorporate a wide range of software- and hardware-based fault tolerance features including:

* Fully-redundant switch fabric, node processors, timing modules, fan units, and power supplies

* Automatic failover to a standby switch processor module to continue services without losing data

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- Hot swap and live insertion capabilities on all I/O and switch processor modules to help reduce network downtime

- Flash memory to simplify field installations of new hardware

- Priority-based routing of hundreds of thousands of circuits per second to help minimize service disruptions

- Distributed routing and signaling control to help avoid single points of failure

- 1+1 Automatic Protection Switching

PacketStar* PSAX Multiservice Media Gateway

The PacketStar* PSAX 4500 Multiservice Media Gateway has a broad range of reliability features including:

- Redundant control, Stratum timing, and power components.

- N:1 protection for up to four high-performance DS3, E3, and STS-1e modules.

- The PSAX 4500 implements Telcordia standard APS and Multiplex Section Protection (MSP) trunking. If a network outage does occur, the switch can complete an APS or MSP switchover within 50 msec.

- The PSAX 4500 uses switched virtual circuit (SVC) protection, dual home PVCs, and Private Network-to-Network Interface (PNNI) auto-reroute to provide additional protection.

Tailored CES design supports each switch's role in the multiservice network

CBX 500* and CBX 3500™ switches provide structured and unstructured low-speed CES

Many service providers use the CBX 500* and CBX 3500™ switches to provide scalable low-speed edge services. Therefore, both structured and unstructured low-speed CES on the CBX 500* and CBX 3500™ switches is implemented via the 60-port Channelized T1/E1 Circuit Emulation Services Module. This provides maximum flexibility in using the CBX 500* switch to migrate traditional TDM DS0 and DS1/E1 leased line services to their ATM network.

PSAX Gateways support robust voice capabilities

Many service providers use PacketStar* PSAX Multiservice Media Gateways to transport voice over their existing packet networks. To deliver seamless support for these voice applications, Lucent's CES implementation on the PSAX switch portfolio provides optional voice processing, such as AAL2 voice compression, silence suppression, echo cancellation, and fax/modem bypass, for CES applications.

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Circuit Emulation Feature Support

Feature	CBX 500 and CBX 3500™ Switches	PSAX
AAL1-compliant CES interworking (TDM to ATM adaptation) (AF-vtoa-0078.000 support)	✓	✓
AAL2 support (voice compression, silence suppression, echo cancellation and fax/modem bypass)		✓
AAL5	✓ for control traffic	✓
Support for unstructured CES	✓	✓
Support for structured CES	✓	✓
CAS and CCS pass-through signaling	✓	✓
End-to-end point and click provisioning	✓	✓
Carrier-class reliability and scalability	✓	✓
SVC, PVC, and soft PVC support for CES	✓	✓
Traffic management capabilities	✓	✓
UNI 3.0, 3.1, and 4.0 interface support	✓	✓
CES-IS 2.0 MIB	✓	
CES MIB		✓
H.248 and GR-303/V5.2 support		✓
A-law and µ-law companding		✓

Figure 5 — Lucent platforms support slightly different CES features. The CES support on each switch reflects its role in the Lucent multiservice network.

Available modules

Multiservice Switch Platform	Module
CBX 500® and CBX 3500™ Multiservice Switches	60-Port Channelized T1/E1 Circuit Emulation Module
PacketStar® PSAX Multiservice Media Gateway	– 1-Port Optical OC-3/STM-1 CES Module – 3-Port Channelized DS3/STS-1e CES Module – 3-Port DS3/E3 Unstructured CES Module – 3-Port DS3/E3 CES Module – 12-Port DS1/E1/DS0A CES Module – All PSAX Multiservice Modules

Figure 6 — Lucent offers a wide range of CES-capable interfaces to support a variety of CES applications in the multiservice network.

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Conclusion

With Standards based CB support, efficient bandwidth use, flexibility and service density, the Lucent CES solution can leverage the ATM network to support profitable leased-line services and reduce the costs associated with traditional TDM services. By consolidating more services onto their Lucent multiservice network, service providers can reduce their operating and equipment costs, streamline network management, increase overall service density, and use their available network bandwidth more efficiently.

Appendix A: Acronyms

The following table lists the acronyms used in this paper.

Acronym	Meaning
AAL	ATM Adaptation Layer
ABR	Available Bit Rate
ADPCM	Adaptive Differential Pulse Code Modulation
APS	Automatic Protection Switching
CAS	Channel Associated Signaling
CBR	Constant Bit Rate
CES	Circuit Emulation Services
CPE	Customer Premise Equipment
DBCES	Dynamic Bandwidth Circuit Emulation Services
DCS	Digital Cross-connect System
DSS1	Digital Subscriber Signaling System Number 1 (Narrow-band ISDN)
DSS2	Digital Subscriber Signaling System Number 2 (Broadband ISDN)
DTMF	Dual Tone Multifrequency
FCP	Flow Control Processor
ICP	IMA Control Protocol
IMA	Inverse Multiplexing for ATM
IWF	Interworking Function
MSP	Multiplex Section Protection
MR	Monthly revenue potential
PCM	Pulse Code Modulation
PRI	Primary Rate Interface
PRS	Primary Reference Source
PVC	Permanent Virtual Circuit
QoS	Quality of Service
SDT	Structured Data Transfer
SLA	Service Level Agreement
SVC	Switched Virtual Circuit
TCO	Total Cost of Ownership
TDM	Time Division Multiplexing
UNI	User to Network Interface
VC	Virtual Circuit
VCC	Virtual Channel Connection
VCCI	Virtual Channel Connection Identifier

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BusinessPartner or, visit our Web site at www.lucent.com or
http://www.lucent.com/solutions/core_switching.html

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Buy It Now price:	**US $495.00**	Buy Now
Shipping costs:	**US $35.00** Other (see description) Service to United States	
Ships to:	Worldwide	
Item location:	OVERNIGHT SHIPPING AVAILABLE, United States	
Quantity:	2 available	
History:	Purchases	
Buyer:	User ID kept private	
You can also:		
	Get alerts via Text message or IM Sell one like this	

Listing and payment details: Show

Meet the seller

Seller: networkequipt (699 ⭐) Power Seller

Feedback: 98.7% Positive

Member: since Jan-04-04 in United States

• Read feedback comments
• Ask seller a question
• Add to Favorite Sellers
• View seller's other items: Store | List
• Visit seller's Store:
  🏪 Elegant Networks

Buy safely

1. Check the seller's reputation
   Score: 699 | 98.7% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Description (revised)
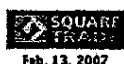
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pa-a2-4t1c-oc3sm

ATM CES Port Adapter, 4 T1 CES Ports and 1 OC-3 ATM SM Port

THIS UNIT PULLED FROM WORKING ROUTER 7206 AND IT WORKING GOOD!!!

TESTED WARARNTY FOR 7200'S

!!!!WARRANTY WORKING!!! !!!!!

30 DAYS WARARNTY WORKING !!!!

SHIPPING OVERNIGHT AVAILBLE

PLEASE READ BEFORE PLACE A BID. DO NOT BID IF YOU DON'T UNDERSTANDING OR ASK QUESTION.

****SHIPPING****

ALL SHIPPING WILL BE SHIPPED IN 48 STATES IN U.S CONTINENTAL. OTHER STATES IS AVAILABLE BUT SHIPPING

WILL BE HIGHER, SHIPPING OVERNIGHT AVAILBLE BUT SHIPPING COST WILL HIGHER, CONTACT US FOR QUOTING. INTERNATIONAL BIDDER WILL BE ADD $35.00 FOR WIRE TRANSFER. DOMESTIC WIRE TRANSFER: PLEASE ADD $20.00 FOR WIRE TRANSFER.

*****PAYMENT*****

PAYPAL!!! CASHIER CHECK, MONEY ORDER, COD (CASHIER CHECK ONLY), COMPANY CHECK OR PERSONAL CHECK (MUST CLEARED BEFORE SHIP MERCHANDISE OUT). INTERNATIONAL BIDDER: WIRE TRANSFER ONLY or paypal with confirmed address only Payment is due within 5 days of auction closing. If payment is not received within this time, item will be relisted on eBay

*****TAX****

ALL CALIFORNIAN BUYER WILL BE PAY 8.25% (or will provide reseller for tax waiver).

WARRANTY&REFUND$LOST&DAMAGES

ALL PRODUCT SALES AS IS UNLESS STATE ABOVE RETURN ALL PRODUCT DEFECTIVE WILL BE REPLACE OR REFUND WITH OUT SHIPPING COST AND PRODUCT MUST BE RECEIVED THE SAME CONDTION AS SHIPPED, WE WILL RETEST PRODUCT IF IT HAS MISUSED OR DAMAGE WE WILL NOT REFUND TO BUYER. LOST OR DAMAGE BUYER RESPONED FOR ALL LOST OR DAMAGE MERCHANDISED, IF PRODUCT BROUGHT INSURANCE BY BUYER REQUESTED, BUYER RESPONDED TO CLAIMED INSURANCE. we will charge for 15% restocking fees if product return non defective or buyer bought wrong product.

On Feb-27-05 at 05:55:42 PST, seller added the following information:

Pay for this auction online with BidPay®

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stwfiwar

Find more items from the same seller. Bid or Buy Now!
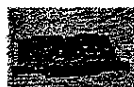
CISCO 3060 CVPN3060-NR-BUN CONCENTRATOR	CISCO 3060 CVPN3060-NR-BUN CONCENTRATOR	CISCO UBR7200-NPE-G1 FOR 7200'S SERIES ROUTER	CISCO 7204VXR /NPE400/C7200-I/O-2FE/E- 2AC
=Buy It Now US $8,950.00	=Buy It Now US $8,950.00	=Buy It Now US $7,995.00	=Buy It Now US $7,450.00
		Time left: 9d 8h 6m	

Visit seller's Store

Shipping, payment details, and return policy

Ships to
Worldwide

Country: United States   Quantity: 1   [Update]

Shipping and Handling	Each Additional Item	To	Service
US $35.00	+ $25.00	United States	Other (see description)

Shipping Insurance
Not offered

Payment methods accepted

This seller, networkequipt, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MasterCard VISA AMEX DISCOVER]	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?
CISCO pa-a2-4t1c-oc3sm TESTED WARARNTY FOR 7200'S
Buy It Now price: US $495.00

Help

Your Quantity: x 1

[Buy It Now] You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

This is a private listing. Your identity will not be disclosed to anyone except for the seller.

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🔄 Back to list of items   Listed in category: Computers & Networking > Networking > Routers, Wired > Cisco > Other Cisco Routers

Cisco PA-A2-4T1C-T3ATM Router Refurbished

Item number: 9728201097

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price: US $499.95   **Buy It Now**

Get It Fast As soon as February 15 (conditions)

Best Offer   **Make offer**

Make no payments for 3 months Apply

Shipping costs: Calculate
Ships to: Worldwide
Item location: High Point, North Carolina, United States
History: 1 Offer

You can also: **[   ]**

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Sell one like this

View larger picture

Listing and payment details: Show

Meet the seller

Seller: teldealp (141 ⭐) 🌟 Power Seller
Feedback: 99.3% Positive
Member: since Oct-01-99 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
  🏪 TelDeal

Buy safely

1. Check the seller's reputation
   Score: 141 | 99.3% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Description (revised)

Item Specifics - Routers
   Condition: Used

TelDeal > CISCO

TelDeal

Visit my eBay Store: 🏪 TelDeal

△ TelDeal
Your Telecom Equipment Outlet

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We have the following Cisco PA-A2-4T1C-T3ATM pack for sale!!

-CISCO 7200 4PT CES T1 1PT ATM T3

Please visit the manufacturer's page for more information:

http://www.cisco.com/

TelDeal can be your one stop shop for all your central office and transmission needs!!

This auction is for the above described hardware only.

This unit is refurbished

Part Number: PA-A2-4T1C-T3ATM

Our Price: $499.95 each

This product is covered by our 3 month warranty against defect
We accept PayPal, Money Orders and business checks from select companies. North Carolina end users: You

may be subject to NC sales tax.

Please don't hesitate to call us for questions or other parts you might need. Please ask for the EBAY Department.

1-800-876-4101

ebay@teldeal.com

Powered by Selling Manager Pro
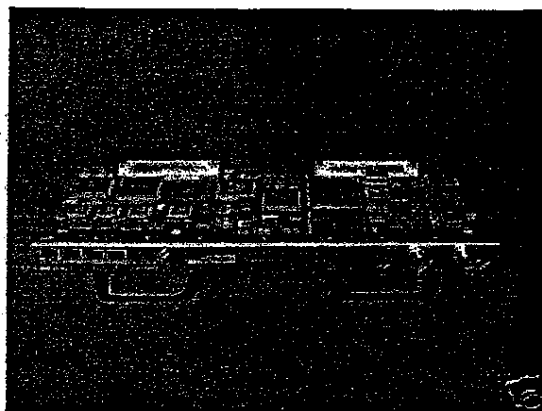
FREE Counters and Services from Andale

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Cisco LC-OC12-DS3 Channelized DS3 Card Refurbished

Buy It Now   US $2,500.00

Cisco 15454-TCC+ Circuit Pack Refurbished

Buy It Now   US $1,700.00

CISCO 15454-AIC Alarm I/F Module Refurbished

Buy It Now or Best Offer   US $975.00
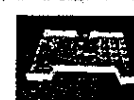
Cisco 15454-DS1-14 Electrical DS1 1:N Dsx 14 CKT Refurb

Buy It Now   US $950.00

🛍 Visit seller's Store

Shipping, payment details, and return policy

Ships to
Worldwide

Country: United States   Zip or postal code: [   ]   Update

Shipping and Handling	To	Service
Enter zip code	United States	UPS Ground 1 to 5 business days
Enter zip code	United States	UPS 3 Day Select[SM]

Enter zip code	United States	Guaranteed in 1-3 days* UPS Next Day Air® Guaranteed by next day by 10:30am*

Shipping cannot be calculated for your area. You can contact the seller for additional shipping costs and services.

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Domestic Handling Time
Will usually ship within 1 business day of receiving cleared payment.

Get it Fast Get your item as soon as February 15 when you select UPS Next Day Air®.

Shipping Insurance
Included (in the shipping and handling cost)

Seller's payment instructions
Please contact us at ebay@teldeal.com for multiple purchase

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal VISA AMEX	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available

Learn about payment methods.

Ready to buy?
Cisco PA-A2-4T1C-T3ATM Router Refurbished
Buy It Now

Buy It Now price: US $499.95

Buy It Now   You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

or.   **Submit Best Offer**

Make Offer

Present your highest offer to the seller.
Learn about Best Offer.

Help

What else can you do?

Back to list of items | Ask seller a question | Report this item | Printer Version | Email to a friend

Seller assumes all responsibility for listing this item.

Listed in category: Computers & Networking > Networking > Router Components, Memory > Other Brand Components, Memory > Port Adapters (PA)

Cisco PA-A2-4T1C-T3ATM, 4T1 CES Ports, 1 T3 ATM Port
FULL WARRANTY + FREE SHIPPING with BuyIt Now!

Item number: 5782068824

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy it Now price:	US $599.99
Best Offer	
Shipping costs:	Check item description and payment instructions or contact seller for details
Ships to:	Worldwide
Item location:	Waldwick, NJ (888) 280-6244, United States
You can also:	

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Listing and payment details: Show

Meet the seller
Seller: newageworks (667 ☆) ⚡ Power Seller
Feedback: 99.4% Positive
Member: since Mar-20-98 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
   🏪 NewAge Technology Solutions LLC

Buy safely
1. Check the seller's reputation
   Score: 667 | 99.4% Positive
   Read feedback comments
2. Check how you're protected
   If paying with a credit card, see your card issuer's terms

Description (revised)

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Product Model

See Description below for our ≈Buy it Now Free Shipping Offer!

Call our Expert Sales Team at (888) 280-6244

Cisco PA-A2-4T1C-T3ATM =

PA-A2 ATM CES Port Adapter

4 T1 CBR ports and 1 T3 ATM port

Port Adapter For use in Cisco 7100, 7200, uBR7200, 7401ASR routers and on the second-generation Versatile
Interface Processor (VIP) in all Cisco 7000 series and Cisco 7500 series routers and on the Catalyst 6000 family
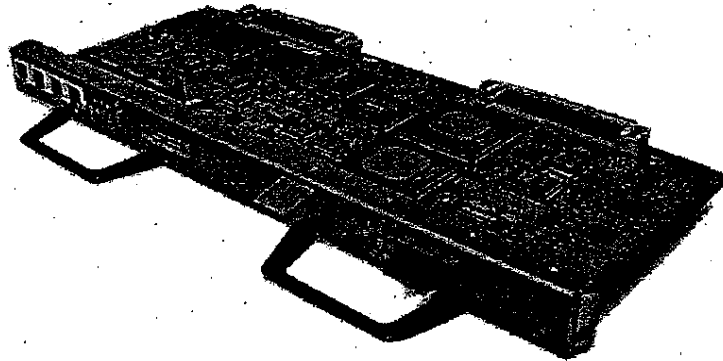
Unit for sale is the T3ATM Model (Sample Picture above shows OC3 model)

We carry an extensive Cisco inventory of Network Modules, Wan Interface Cards, Port Adapters, 5000/6000/7200/7500 Blades and Memory Upgrades

Lowest Retail Price is $4400

Manufacturer List Price is $15000

Enjoy the Purchasing Security of a 30 Day Guarantee against Defect

SQUARE TRADE
Feb. 13, 2007

eBay User ID:
newageworks

ATM port   CBR ports
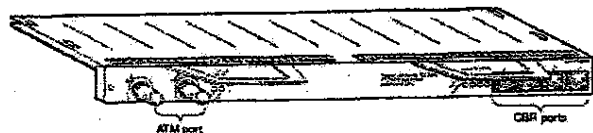
The ATM CES port adapter is a dual-wide module. It has four T1 (1.544 Mbps) or four E1 (2.048 Mbps) 120-ohm constant bit rate (CBR) ports that can support both structured (N x 64 kbps) and unstructured ATM Forum-compliant circuit emulation services (CES), and a single port of an OC-3 (155 Mbps) single-mode intermediate reach or a T3 (45 Mbps) or E3 (34 Mbps) standards-based ATM interface.

Note The ATM CES port adapter can be used only on a Cisco 7200 series router or a Cisco uBR7246 that has a 150-MHz network processing engine (NPE-150) or better.

The target application of the ATM CES port adapter is access to a broadband public or private ATM network where multiservice consolidation of voice, video, and data traffic over a single ATM link is a requirement.

This item is being sold with the guarantee that it is in all regards tested and in **Excellent Working Order**. Please read the detailed description below for complete information regarding condition and accessories included. Please note that the image above is an advertising sample and is not a picture of the actual product. The item for sale is in all regards representative of the image.

<u>Click here</u> to visit the manufacturer's website.

⤊
TOP

Product Condition & Description

=BuyItNow by scrolling to the top or bottom of this auction and clicking on [Buy It Now] and have your item **shipped free** of charge via Insured UPS Ground within the Continental U.S. Otherwise, please refer below for the actual shipping charges.

This auction is for one **Cisco Port Adapter PA-A2-4T1C-T3ATM =. Very Clean spare equipment, never deployed, tested and complete with a 30 DAY Guarantee. We have SmartNet packages available as well at greatly discounted pricing. We stock a full line of the Cisco 7200/ VXR series routers, and as such have a full compliment of port adapters and components available for sale.**

FULL 30DAY Warranty on all Cisco Products !!

We carry an extensive selection of Alteon, Brocade, Cabletron/Riverstone, Cisco, Compaq, Dell, IBM, EMC, Extreme, Foundry, HP, Netscreen, Nokia, and Sun Microsystems. Contact us anytime should you be interested in an alternate configuration or a technology product not listed.

International Bidders - please review our <u>international terms</u> below before bidding for terms and shipping information.

✉

[Help / Questions]

More Questions? Chat Live with our Representatives

AIM: newage411chat

MSN: newage411chat

Yahoo: natechschat

ICQ: 343475569

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Pay securely with most major credit card through PayPal!

Payment via Paypal can be made anytime after the auction by **clicking on the Checkout icon** below and submitting your order.

All orders need to be processed on our secure order site by **clicking on the Checkout icon** below within 48 Hours of the conclusion of the auction. Payment needs to be received within 5 days after the conclusion of the auction. American Express, PayPal, Postal Money Orders, Certified Bank Checks and Wire Transfers received timely will ship within 5 business days of receipt/processing - all other payment types (including bank money orders and cashiers checks) will ship within 7days. Fortune 1000 Net 10 Terms available upon credit approval prior to close of auction. We do not accept COD or other Escrow payment options.

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Product Price Comparison

So you like what you see, but are uncertain as to the product's **present market value**. We have provided two very useful tools to assist you with your online shopping experience. For pre-owned products, **click on the eBay link** we have provided below to see what the same product has recently sold for on eBay. For current technology products, **click on the Shopping link** below for real-time price comparisons from other online retailers.

shopping com

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Shipping & Handling Charges

Ground Shipping & Handling charges within the 48 states will be $30

All Shipping is handled by **FEDEX/UPS** and must be shipped to a legitimate street address where a signature can be obtained (no PO Boxes Please). Services range from the affordable **UPS** Ground Service to **FEDEX/UPS** International Priority Services. Insurance will be included in the cost for all shipments as will be email tracking notification services. If you are outside of the continental U.S. and/or require a different class of UPS/FEDEX service, please be certain to email us prior to auction close for a rate quote. We can also ship using a customer's UPS or FEDEX account, minus any handling charges. US Postal Service will be offered as an option for international buyers only.

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Additional Terms and Information

NON-PAYMENT If payment is not received after 7 business days, your item may be re-listed or withdrawn. eBay will be notified and a non-paying bidder complaint will be submitted. Please direct any questions you may have prior to bidding to ebay@newageworks.com.

SHIPPING All shipping is handled by either FEDEX or UPS. All items are shipped with 5 business days after we collect payment unless otherwise noted. We do not ship C.O.D. or via the US Post Office. "Shipping" charges include packaging, insurance, shipping and handling charges. We cannot separate shipping from packaging or handling charges. We ship "F.O.B. Destination". We automatically insure from our location. The default shipping mode is GROUND. Expedited services are available at additional costs. We will also ship using a customer's UPS or FEDEX account, minus any handling charges incurred. Special Shipping arrangements will always be considered upon request. Please submit all special shipping requests on our secure order form. As a service, NewAgeWorks, LLC will manage all claims for damaged merchandise with the shipper. The shipper must inspect and may pickup the damaged item. Please keep all original packaging available for the shipper's inspection. If the shipper picks up the item after completing their inspection, please return all parts received or we will only be able to provide a partial refund. We do not refund for shipping damage until the shipper completes the inspection process, notifies us that the claim has been processed and we are in receipt of the damaged product.

SALES TAX All orders shipping to a New Jersey address will be assessed the requisite 6% NJ State Sales Tax, unless a proper NJ Resale Certificate or other Exemption Certificate is presented.

INTERNATIONAL BUYERS Must complete transaction in US Funds within 10 business days from the close of auction. You are responsible for all shipping costs including any imposed tariffs & customs. PayPal is not accepted, nor are credit card payments accepted. We may Ship USPS, which is oftentimes much more affordable - please visit http://ircalc.usps.gov/ for rate information.

RESERVATIONS The Seller reserves the right not to sell to bidders with negative or hidden feedback; or in the event of eBay Server downtime or other system problems, which in the Seller's opinion might have effected the bidding process. Seller also reserves the right to end any auction early.

Guarantee and Warranty

Any item that we sell that is listed as New, Factory Sealed, or in any other condition whereby a manufacturer's warranty is still in effect, will be covered under that warranty and will supersede any guarantees offered by NewAgeWorks, LLC. If an item sold is not covered under a manufacturer's warranty and was described in working order by us, it will be covered under the terms of our limited guarantee below. NewAgeWorks, LLC does not provide additional or extended warranties and makes no express or implied warranties or representations with respect to the items (including, but not limited to; implied warranties of merchantability and fitness) and disclaims any liability that may arise from the use of purchased items.

Unless stated otherwise above, you have 5 business days from date of receiving the item to review it for any undocumented material defect or deficiency, including shortages. We do not offer refunds or exchanges after 30 days. We will issue an RMA number that you should write on the outside of the package you are returning to us. We will assume no liability should an item be returned without an RMA number and/or should an insurance claim be denied as the package was not available for inspection at the destination address. If the item is not working and there are no obvious signs of physical damage, at our discretion we will either replace the item if an exact item is in stock or refund your original purchase price minus any shipping costs. All items listed "AS IS" are not subject to any guarantees other than any manufacturer's warranty that may still apply and to count and condition as described. Do not attempt to repair the item if it is in any way damaged or nonfunctional without first contacting us. Attempting to repair an item without contacting us voids the warranty. Items must be returned in original shipping box undamaged to receive a refund. We will not refund shipping, packaging, pickup fees or bank/Paypal fees. Please allow up to five business days after an item returns to us before we process a refund.

Items returned for any reason other than for those listed above, or found to be non-deficient, or without material defect are subject to a 25% restocking fee. If UPS or delivery vendor is unable to deliver the item to you and the item is returned to us, you will be required to pay shipping a second time in order to receive the item or accept a 25% restocking fee if you do not wish to have the item reshipped. Customers who refuse packages at the time of delivery will be charged a 25% restocking fee and all

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Nokia Firewall IP740 1Ghz Enterprise
Security Gigabit

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Shipping, payment details, and return policy
Services available

Check item description and payment instructions or contact seller for details.

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Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?
Cisco PA-A2-4T1C-T3ATM, 4T1 CES Ports, 1 T3 ATM Port
Buy It Now   or   **Submit Best Offer**

Help

Buy It Now price: US $599.99

[image] You will confirm in the next step.

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[image]

Present your highest offer to the seller.
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Advanced Search

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◉ Back to list of items   Listed in category: Computers & Networking > Other Hardware & Services > Other Hardware > Other

CISCO PA-A2-4T1C-OC3SM ATM CES PORT ADAPTER 4T1 + 1 OC3   Item number: 120075883499

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IT Equipment Xpress

IBM. TOSHIBA [hp]

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Buy It Now price: US $624.97 [Buy It Now]

Get It Fast As soon as February 15 (conditions)

Shipping costs: US $15.95 (discount available)
UPS Ground
Service to United States
(more services)
Ships to: Worldwide
Item location: San Diego USA, United States
Quantity: 2 available
History: Purchases

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Listing and payment details: Show

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Feedback: 98.7% Positive
Member: since Jun-12-97 in United States
∗ Read feedback comments
∗ Ask seller a question
∗ Add to Favorite Sellers
∗ View seller's other items: Store | List
∗ Visit seller's Store:
   🏪 IT Equipment Express

Buy safely

1. Check the seller's reputation
   Score: 2312 | 98.7% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility
   Returns: Seller accepts returns.

   14 Days Money Back

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IT Equipment Express > Other

IT Equipment Express

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Toll Free / In the USA   Outside the USA
866-419-6615   760-806-2731
Hours: Monday-Friday 7:00 AM-5:00 PM Pacific Time

Manufacturer: CISCO
Part Number: PA-A2-4T1C-OC3SM
Description: CISCO PA-A2-4T1C-OC3SM ATM CES PORT ADAPTER 4T1 + 1 OC3 ATM PAA24T1COC3SM

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since 1997

CISCO PA-A2-4T1C-OC3SM ATM CES PORT ADAPTER 4T1 + 1 OC3

Condition: This item is refurbished, and in good condition. This item is guaranteed against DOA and defect.

Comment: This is a genuine, original part.

Warranty: 14 days from receipt of goods. Guaranteed against DOA and defect. Additional Warranty Information.

Quantity Available: See Above. Additional units may be available. Please call us: if available we can add them to the auction.

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We take very good care of our customers: see our Feedback. If an item is defective we will replace it for you.
Actual customer comments:
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"Quick ship, oringal packaging, good deal" liflood3.
"Incorrect item, but full refund offered. Good service." billkohlerphoto

*** You can't go wrong bidding on this ***

Contact Info: Click Here. If you have any questions, before bidding or after you have won an auction, give us a call at 760-806-2731, we are available 7am-5pm Pacific Time, Monday-Friday.

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United States Shipping

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Satisfaction Guarantee:

100% guarantee against defect, or your money back!

PayPal Buyer's Protection up to $1000!

United States Shipping Details

- All packages shipped via UPS/Fedex Ground to the 48 continental states only.
- This shipping price covers all shipping and handling charges.
- UPS 3 Day Select^{SM}, UPS 2nd Day Air, and UPS Next Day Air®Shipping is available at an additional charge, see auction details.

Payment Methods

via UPS / Fedex
Ground Shipping

$15

(48 States)

via UPS / Fedex
2nd Day Air

$39

Alaska, Hawaii, APO/FPO
& Puerto Rico

Alaska, Hawaii, and Puerto Rico
Shipping Details

- Packages shipped via UPS or Fedex 2nd Day Air
- This shipping price covers all shipping and handling charges.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details.

International Shipping

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International Shipping

Canada
$32

Australia & New Zealand
$86

Europe, Mexico & South America
$86

S.E. Asia, Africa & Middle East
$86

Above pricing covers shipping and handling.

International Shipping Details

- International orders may be subject to local customs and duties, for which Buyer is solely responsible.
- To prepare item and documents for international shipping, allow 2-4 business days before item will be shipped.
- This shipping price covers all shipping & handling charges. Shipping costs may vary; if so, we will contact you.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details

$ Payment Details

We prefer Paypal (Free Buyer's Protection up to $1000!) , but we also accept Credit Cards, Money Orders, Purchase Orders and Cashiers Checks. Auction winners must claim and pay within 7 days of auction close. If you do not pay or respond within 7 days, we will file an Unpaid Item Strike to eBay and reserve the right to leave negative feedback. California Residents add 7.75% sales tax.

Payment Instructions: Simply use eBay's checkout. You will then be able to pay using Paypal or other methods.

NEW! Free coverage up to $1,000

Policies

14 Day - Satisfaction Guarantee Policy

Warranty: All items we list on Ebay are warranted against DOA and defect. This is a limited warranty: we do not guarantee compatibility with your software and/or hardware. See auction page for details.

Satisfaction Guarantee: 100% guarantee against defect, or your money back! If we cannot replace the item, we will refund your money.

Return Policy: Defective Items must be returned to us within 14 days of receipt of goods. Buyer pays for return shipping. No returns accepted without a Return Merchanized Authorization (RMA). Shipping costs are non-refundable.

Please make sure this is the Item you need. Although we warrant Item to be in good working condition, we cannot guarantee compatibility with your equipment or software. If any doubt, or need more Information, please contact us _before_ purchasing: we cannot take Items back because you didn't check beforehand.

- Your questions are important to us. Please call us with any of your questions. We are open between 7:00 am and 5:00 pm (PST) Monday through Friday.

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Save up to $4.00 shipping for each additional item from this seller's other listings!*

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Buy It Now US $28,386.90	Buy It Now US $28,225.06	Buy It Now US $27,262.50	Buy It Now US $26,953.00
Time left: 1d 1h 46m	Time left: 1d 19h 57m	Time left: 1d 1h 43m	Time left: 21h 24m

Visit seller's Store

Shipping, payment details, and return policy

Save up to $4.00 shipping for each additional item from this seller's other listings!
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Ships to
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Country: United States	Quantity: 1	Update

Shipping and Handling	Each Additional Item	To	Service
US $15.95	+ $7.45	United States	UPS Ground 1 to 6 business days*
US $39.95	+ $20.45	United States	UPS 2nd Day Air® Guaranteed in 1-2 days*
US $60.95	+ $30.45	United States	UPS Next Day Air Saver® Guaranteed by next day*

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Domestic Handling Time
Will usually ship within 1 business day of receiving cleared payment.

Get it fast Get your item as soon as February 15 when you select UPS Next Day Air Saver® for US $60.95.

Shipping insurance
Included (in the shipping and handling cost)

Seller's return policy:
Item must be returned within: 14 Days   Refund will be given as: Money Back
Return Policy Details: Buyer has 14 days from the receipt of goods to return defective item to us for exchange. Details are on our Ebay Store page at
http://stores.ebay.com/IT-Equipment-Express/Warranty.html

Sales tax

Seller charges sales tax for items shipped to: CA (7.750%).

Payment methods accepted

This seller, it_equipment_xpress, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal MASTERCARD VISA AMEX DISCOVER ECHECK	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?

Help

CISCO PA-A2-4T1C-OC3SM ATM CES PORT ADAPTER 4T1 + 1 OC3

Buy It Now price: US $624.97

Your Quantity: x 1

Buy It Now > You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

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🔄 Back to list of items   Listed in category: Computers & Networking > Networking > Router Components, Memory > Other Brand Components, Memory > Port Adapters (PA)

CISCO PA-A2-4T1C-OC3SM CES 7200/7204/7206 Warranty

Item number: 250081468172

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

=Buy It Now price: US $545.00   [Buy It Now]

Make no payments for 3 months Apply

Shipping costs: Check item description and payment instructions or contact seller for details

Ships to: Worldwide

Item location: KC,MO, United States

Quantity: 3 available

History: Purchases

You can also: [   ]

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Listing and payment details: Show

Meet the seller

Seller: netech_inc (2676 ★) ⚡Power Seller

Feedback: 99.4% Positive

Member: since Sep-07-01 in United States

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» View seller's other items: Store | List
« Visit seller's Store:
    🏪 Netech Inc NETWORK HARDWARE STORE

Buy safely

1. **Check the seller's reputation**
   Score: 2676 | 99.4% Positive
   Read feedback comments

2. **Check how you're protected**
   PayPal This item is covered up to $2,000 See eligibility

Description

Netech Inc NETWORK HARDWARE STORE

Visit my eBay Store: 🏪 Netech Inc NETWORK HARDWARE STORE

NETECH

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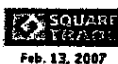
SQUARE TRADE   eBay User ID:
                netech_inc

Feb. 13, 2007

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Highlights

Netechinc News

Here at Netechinc, our
mission is to provide

BID WITH EXTREME CONFIDENCE AS WE ARE PLATINUM POWER SELLERS!

All our products are guaranteed to work and warranted for 90 days from the day of receipt.

All units have been inspected and tested at our Warehouse in Kansas City, MO.

Description:

CISCO PA-A2-4T1C-OC3SM CES Port Adaptor 7200/7204/7206 & 7500! 90 Day Warranty!

We have in stock a Fully Tested PA-A2-4T1C-OC3SM adaptor for the Cisco 7200/7500 Series High End Router's. This Card is Dual Wide and has 1 Enhanced ATM OC3 Interface & 4 T1/E1 RJ45 Ports !

The ATM-CES port adapters (PA-A2-4T1C-OC3SM, PA-A2-4T1C-T3ATM, PA-A2-4E1XC-OC3SM, PA-A2-4E1XC-E3ATM, PA-A2-4E1YC-OC3SM, and PA-A2-4E1YC-E3ATM) are available on Cisco 7200 series routers. The ATM-CES has four T1 (1.544 Mbps) or four E1 (2.048 Mbps) ports (75- or 120-ohm) that can support both structured (N x 64 kbps) and unstructured ATM Forum-compliant circuit emulation services (CES), and one port that supports an OC-3 (155 Mbps) single-mode intermediate reach interface or a T3 (45 Mbps) or E3 (34 Mbps) standards-based ATM interface. The target application of the ATM-CES port adapter is access to a broadband public or private ATM network where multiservice consolidation of voice, video, and data traffic over a single ATM link is a requirement. The ATM-CES port adapter supports the following features: Cross-connect Circuit Emulation Services (CES)—structured and unstructured Four-port T1 or E1 (75- or 120-ohm) constant bit rate (CBR) Network timing distribution On/off hook Channel Associated Signaling (CAS) Segmentation and reassembly (SAR) of up to 512 buffers simultaneously, where each buffer represents a packet Total of 2046 virtual circuits (VCs) of which up to 124 VCs can be CES VCs ATM adaptation layer (AAL) 5 Single-port SONET/SDH OC-3 single-mode intermediate reach ATM uplink Single-port DS3/E3 ATM WAN uplink over T3/E3 Traffic shaping Operation, Administration, and Maintenance (OAM) cells Online insertion and removal (OIR) Available Bit Rate (ABR)-ready hardware

Backed by 90 Day Warranty with Extended Warranty available.

Please bid with Confidence as we are Platinum Power Sellers.

If you wish to Custom Configure a 7200/7300/7500 Series Router please email or call as we have a wide array of Chassis and PA's in stock. >

CUSTOM CONFIGURATIONS ARE AVAILABLE PLEASE EMAIL OR CALL US.

Warranty Protection - Up to 3 Years - Only Pennies a Day!

WARRANTY
AVAILABLE ▶▶

PAYMENTS:	Credit card via Paypal.com, COD Secured (company/personal check for those that apply), checks, wire, escrow.com, etc. Extremely Flexible when it comes to Payment.
WARRANTY:	All units are guaranteed not to be DOA, and also come with a 90 Warranty against Manufacturers Defects. Extended Warranty Available Upon Request.
SHIPPING:	Fedex is our Primary shipping partner, but will gladly ship with either UPS, USPS, or AIRBOURNE upon request.
TERMS:	All returns of non-working hardware must have an RMA number granted by us.
CONTACT INFO:	EMAIL: sales@netechinc.net Office: (775) 588-7545 Phone: (630) 921-2821 Fax: (630) 364-5732

Pay securely with any major credit card through PayPal!

our customers with the highest level of service and support while providing high quality used or refurbished Network Hardware at a mere percentage of retail cost.

Netech. Inc.

1920 Linn Street

North Kansas City, MO

64119

Sales: (630) 921-2821

Fax: (630) 364-5732

Sales

Support

Admin
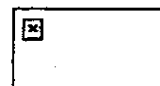
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Cisco PA-MC-E3 7200/7204/7206 VXR. 120 Day Warranty	Cisco PA-POS-OC3SMI 7200/7204/7206 VXR. 120 Day Warr.	Genuine Cisco PA-GE With LX GBIC. 7200/7204/7206 VXR	Cisco PA-VXA-1TE1-24+ Enhanced VOIP 7200/7204/7206 VXR
0 bids: **US $2,345.00**	0 bids: **US $1,625.00**	0 bids: **US $895.00**	0 bids: **US $845.00**
Buy It Now US $2,395.00	Buy It Now US $1,695.00	Buy It Now US $945.00	Buy It Now US $895.00
Time left: 8d 17h 1m	Time left: 8d 19h 23m	Time left: 4d 20h 21m	Time left: 8d 17h

Visit seller's Store

Shipping, payment details, and return policy

Services available

Check item description and payment instructions or contact seller for details.

Ships to
Worldwide

Payment methods accepted

This seller, netech_inc, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal	Seller Preferred	**PayPal** This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?
CISCO PA-A2-4T1C-OC3SM CES 7200/7204/7206 Warranty
Buy It Now price: US $545.00

Your Quantity: x

Help

1

You will confirm in the next step.

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Seller assumes all responsibility for listing this item.

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Back to list of items   Listed in category: Computers & Networking > Networking > Router Components, Memory > Other Brand Components, Memory > Port Adapters (PA)

Like NEW Cisco PA-A2-4T1C-OC3SM Port Adapter 7x00/VXR

Item number: 9717537688

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price:	US $450.00 Buy It Now	**Meet the seller**
	Make no payments for 3 months Apply	Seller: tsfsystems (525 ☆) Power Seller me
Shipping costs:	US $15.00	Feedback: 99.8% Positive
	US Postal Service Priority Mail®	Member: since Dec-07-00 in United States
	Service to United States	▪ Read feedback comments
	(more services)	▪ Ask seller a question
Ships to:	Worldwide	▪ Add to Favorite Sellers
Item location:	Hayward, California, United States	▪ View seller's other items: Store	List
		▪ Visit seller's Store:
You can also:		🏬 TSF Systems
	Get alerts via Text message or IM	**Buy safely**
	Sell one like this	1. Check the seller's reputation
Listing and payment details: Show		Score: 525	99.8% Positive
		Read feedback comments
		2. Check how you're protected
		PayPal This item is covered up to $2,000 See eligibility

Description (revised)

Item Specifics - Item Condition
Condition: Used

TSFsystems

Manufacturer / Model number / Part number:

Like NEW Cisco PA-A2-4T1C-OC3SM Port Adapter 7x00/VXR
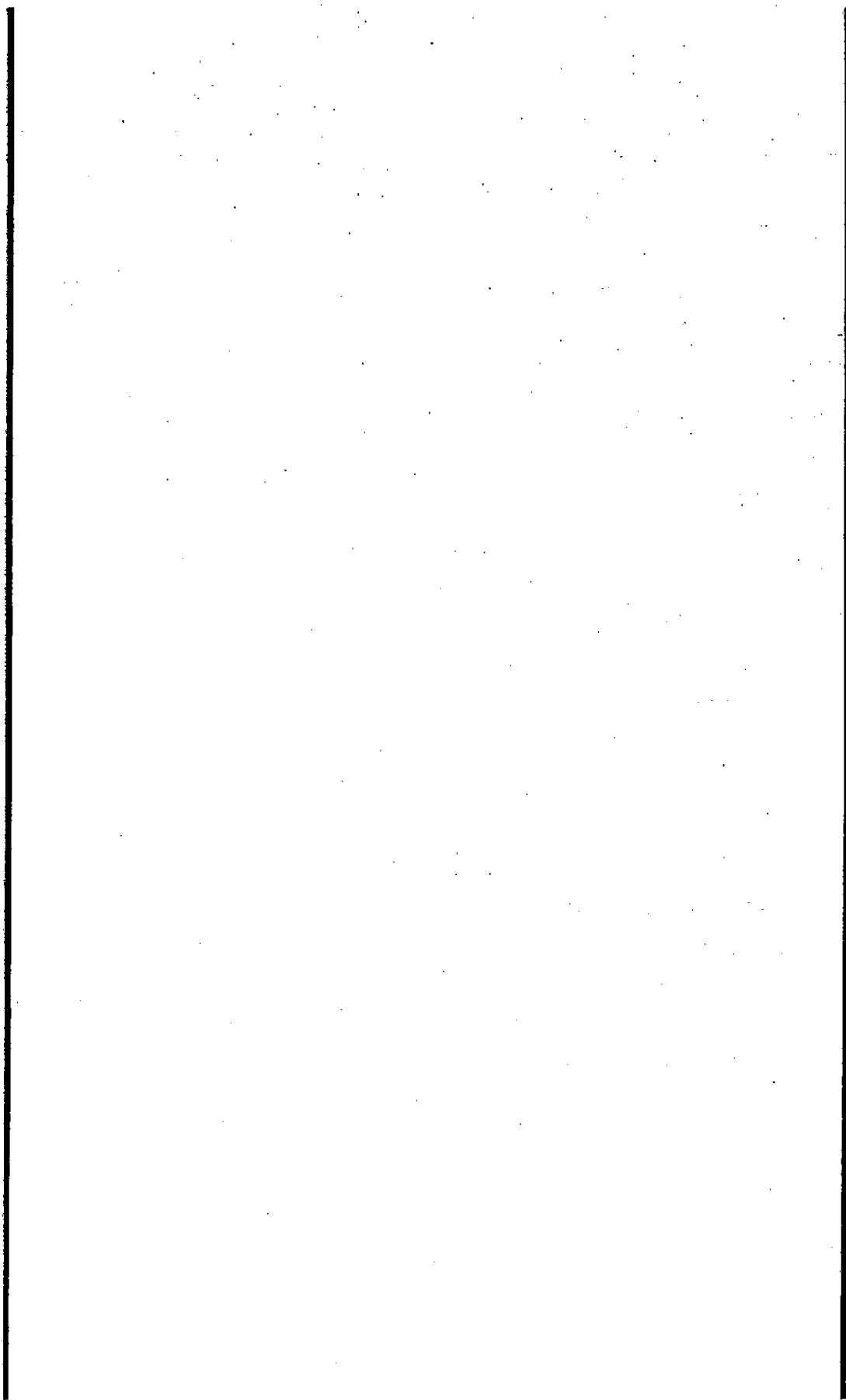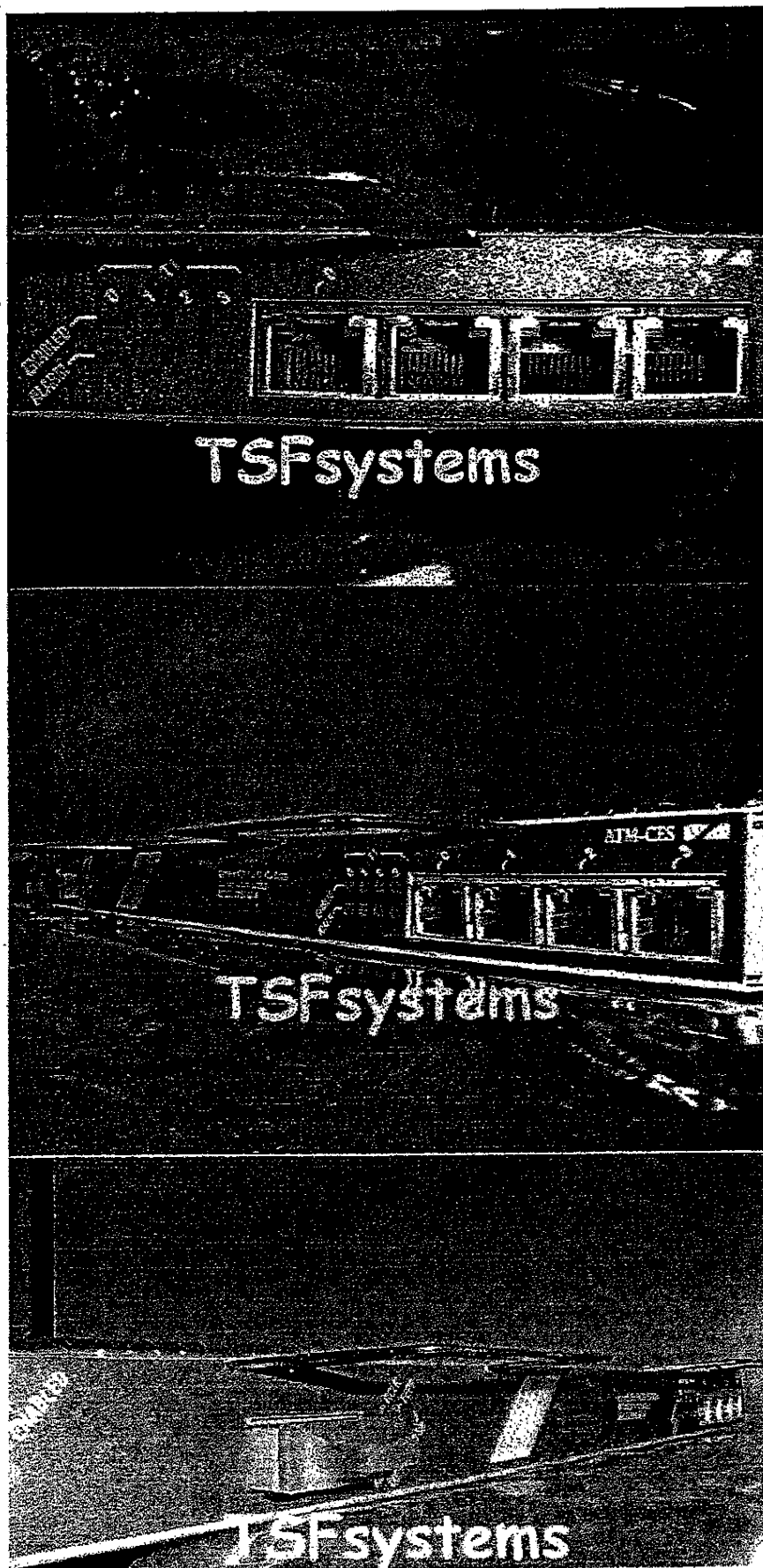
Description:

Used but LIKE NEW Cisco ATM CES Port Adapter, 4T1 CES Ports, and 1 OC3 ATM SM Port. Check out cisco website for more information.

This item was pulled from a working environment. It is fully tested and guaranteed to be free of DOA. Testing results will be provided with purchased items. Testing results is also available upon request.

Supported Platform:

Cisco 7200 Series, Cisco uBR7246

Condition:

Used/Like New

** Testing Results available upon request, email us at testingresults@tsfsystems.com **

SHIPPING

Same Day Shipping:
To qualify for same day shipping, your payment must be received by 2:00 P.M. Pacific time and your paypal account must be verified. For payment from unverified accounts it must be cleared before shipping.

U.S. Postal Service:
TSFsystems will ship most items via USPS priority mail with a registered tracking numbers. Tracking numbers will be provided through email.

Insurance:
Insurance is optional and can be applied with an additional charge. If you decline the insurance, and your package(s) is lost during transit, you assume liability for the shipping charge, package(s) and its contents in the event the package(s) is not located by the carrier.

FedEx Overnight:
FedEx Overnight is available. Please note that there is an additional fee for Fedex Overnight shipping. See item description or contact us for more details. Tracking numbers will be provided through email. Sorry, FedEx does not ship to P.O. Boxes. All FedEx shipments will require a signature.

International Shipping:
All International orders are shipped via FedEx International or USPS Express Mail. If you are outside the US and you would like a shipping quote, email your physical address and we will provide a quote within 24 hours (M-F).

Back to Top

PAYMENTS

Payment Methods:
We accept credit cards through paypal. Please note that your paypal account must be verified in order to be qualify for same day shipping. We also accept Money Order and Cashiers Check. CODs are available with an additional charge. Please contact us for more information on CODs.

Sales Tax:
All sales in California are subjected sales tax based on shipping destination.

VISA PayPal VERIFIED MONEY ORDER CHECK

Back to Top

WARRANTY and RMAs

Warranty:
All equipment are fully tested and guarantee to be free of DOA. We also provide a 60 day warranty of all of our products.

Replacements:
We will provide replacement for defective parts if notified prior to 60 days after original order. In order to replace your defective parts, you must notified us and provide the serial numbers of the defective parts. Replacements will be shipped after defective parts have been received and verified.

Back to Top

CONTACT INFO

Hours
9:00 a.m. - 6:00 p.m. pst
Closed Weekends

Contact:
(510) 315-6846
info@at5ystems.com
Emails are preferred

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Like NEW Cisco PA-A6-OC3SMI Port Adapter 7x00/VXR	cisco PA-POS-2OC3, 2-Port OC-3/STM-1 POS for 7x00/VXR	Like NEW Cisco PA-MCX-8TE1 Port Adapter 7x00/VXR	Cisco PA-MC-8TE1+ 8-port T1/E1 8PRI 7x00/VXR *GENUINE*
Buy It Now or Best Offer US $7,700.00	Buy It Now US $7,000.00 Time left: 7d 20h 30m	Buy It Now US $6,300.00	Buy It Now US $4,700.00

Visit seller's Store

Shipping, payment details, and return policy

Ships to
Worldwide

Country: United States

Shipping and Handling	To	Service
US $15.00	United States	US Postal Service Priority Mail® Estimated delivery 2-3 days*
US $40.00	United States	Overnight Flat Rate Shipping Service 1 business day*

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods

Shipping Insurance

US $8.00 Optional

Sales tax

Seller charges sales tax for items shipped to: CA (8.250%).

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal VISA AMEX	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Other - See Payment instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?   Help.
Like NEW Cisco PA-A2-4T1C-OC3SM Port Adapter 7x00/VXR

Buy It Now price: US $450.00

[Buy It Now]   You will confirm in the next step.

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⊕ Back to list of items   Listed in category: Computing > Networking > Router Components/ Memory

CISCO AX-CESM-8E1 CESM-8E1 MGX MODULE

Item number: 260086343500

Buyer or seller of this item? Sign in for your status

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CISCO SYSTEMS

View larger picture

Buy It Now price: GBP 500.00   [Buy It Now]

(Approximately US $973.70)

Best Offer   [Make Offer]

Shipping costs: To United States -- GBP 39.00
Sellers Standard International Rate
Service to United States
(more services)

Ships to: N. and S. America, Europe, Asia, Australia

Item location: East Sussex, United Kingdom

You can also: [................]

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Listing and payment details: Show

Meet the seller

Seller: highgateprinters (1652 ★) ⚡ Power Seller
Feedback: 99.5% Positive
Member: since Sep-22-03 in United Kingdom
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
  📁 Highgate Printers

Buy safely

1. Check the seller's reputation
   Score: 1652 | 99.5% Positive
   Read feedback comments

2. Check how you're protected

   PayPal This item is covered up to $2,000 See
   eligibility

Description

Item Specifics

   Condition: Used
This translation is provided as a service. eBay cannot guarantee its accuracy.

View Item Specifics in original language.

Highgate Printers > CISCO EQUIPMENT

Highgate Printers

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TESTING EQUIPMENT
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Other Items

CISCO AX-CESM-8E1 MODULE

FULLY TESTED WORKING

WE COMPLY TO ALL POWERSELLER GUIDELINES

DELIVERY IS NEXT DAY WITHIN THE UK

UK BUYERS PLEASE ADD VAT AT 17.5% TO THE FINAL PRICE

_____

CISCO SYSTEMS

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CISCO AX-IMATM-8E1/B IMATM 8E1/B 8 PORT MODULE	CISCO MGX-SRM-3T3/C SRM-3T3/C MGX MODULE	CISCO MGX-AUSM-8E1/B AUSM-8E1/B MGX MODULE	CISCO MGX-FRSM-HS1/B FRSM-HS1/B MGX MODULE
Buy It Now or Best Offer US $973.70	*Buy It Now or Best Offer* US $973.70	*Buy It Now or Best Offer* US $973.70	*Buy It Now or Best Offer* US $973.70
Time left: 88d 12h 23m	Time left: 88d 17h 51m	Time left: 88d 18h	Time left: 88d 18h 2m

Visit seller's Store

Shipping, payment details, and return policy

Ships to
N. and S. America, Europe, Asia, Australia

Country: United States ▼		
Shipping and Handling	**To**	**Service**
GBP 39.00	United States	Sellers Standard International Rate

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Shipping insurance
Domestic: Included (in the shipping and handling cost)
International: Not offered

Seller's payment instructions
DELIVERY IS NEXT DAY

Payment methods accepted

This seller, highgateprinters, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal MC VISA AMEX DISCOVER eCHECK	Seller Preferred	**PayPal** This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available

| Personal check | Accepted | Not Available |
| Credit card | Accepted | Not Available |

Learn about payment methods.

Ready to buy?
CISCO AX-CESM-8E1 CESM-8E1 MGX MODULE
Buy It Now

:or: **Submit Best Offer**

Buy It Now price: **GBP 500.00** (Approximately US $973.70)

[Buy It Now]   You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

[Make Offer]

Present your highest offer to the seller.
Learn about Best Offer.

What else can you do?

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Back to list of items   Listed in category: Computers & Networking > Networking > Switches > Cisco > Other Cisco Catalyst Switches

Cisco 8220 MGX Switch MGX-CESM-8T1 8 port T1

Item number: 250084008733

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price:	US $795.00 Buy It Now	
Best Offer	Make Offer	
Shipping costs:	Check item description and payment instructions or contact seller for details	
Ships to:	Worldwide	
Item location:	Oregon, Salem, United States	
You can also:	Add to Watch list	
	Get alerts via Text message or IM	
	Sell one like this	
Listing and payment details:	Show	

Meet the seller

Seller: 71k (544 ⭐) 🌟 Power Seller
Feedback: 99.5% Positive
Member: since Jun-12-01 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
  📇 NW Remarketing-Kurt

Buy safely

1. Check the seller's reputation
   Score: 544 | 99.5% Positive
   Read feedback comments
2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Description

NW Remarketing-Kurt

Visit my eBay Store: 📇 NW Remarketing-Kurt

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Search

Cisco 8220 MGX Switch MGX-CESM-8T1 8 port T1

If you have any questions about this equipment please feel free to call me @ 503.391.8191 x5 (ask for Kurt) or email kurt@wvi.com. I would be happy to answer your questions 8-5 (pacific time zone)

Free Mainland US Shipping if you elect to buy it now!!

Items ship same day on credit card transactions (contingent upon credit card address)

This card is a clean working pull and comes to you with a 30 day hardware warranty. These modules sold new for $8050.00. You are considering the following:

1 x Cisco AX-CESM-8T1 -- Emulation Service Module - Expansion module - ATM - 8 ports - T-1

The Cisco T1/E1 circuit emulation service modules (CESMs) are designed for use with the MGX 8220 edge concentrators, MGX 8230, MGX 8250 and the MGX 8800 series wide-area edge switches. The CESM-8T1 and CESM-8E1 offer eight T1s or E1s for structured and unstructured circuit services over an ATM backbone for the new world of data networking. The MGX T1/E1 CESM service modules provide eight T1 or E1 circuit interfaces, with full support for structured (channelized) and unstructured (unchannelized) data transfer modes for circuit emulation services over an ATM backbone.

FREE SHIPPING!!!

When you use BUY IT NOW!

- US Only. Buyer pays actual shipping from zip code 97301 if "Buy it Now" is not elected.

I will ship internationally. I will only accept a bank wire transfer as a payment method however. No I will not ship to Indonesia on a credit card or Paypal account, sorry.

I do not accept Visa or Paypal Payments from anyone with an Ebay rating of less than 10. If your feedback is less than 10 and VISA is the only payment method you have available, contact me BEFORE the end of the auction with three trade references. I have made exceptions to buyers with solid referrals. Thanks.

Payments made with credit or ATM cards must be faxed and authorized by signature. I can only ship to the Billing/Confirmed address in ALL Visa/Paypal transactions.

Payment Options:

Pay me securely with any major credit card through PayPal!

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- Mastercard/Visa/Diners/JCB
- Direct Bank Wire Transfer

And the following ATM cards:

- Bank of America
  - Star
  - Interlink
  - Accel
  - Maestro
- Alaska Option

I will ship internationally, hovever Bank Wire transfer is the only payment method I will accept.

I will accept Governmental, Corporate, or Educational Purchase Orders provided you contact me prior to winning the auction. Generally net 15 terms and you meet my guidlines for financial stablility, business reference, etc.

If a refund is necessary, we refund the purchase price. Buyer is responsible for shipping charges to and from our facility.

No refund available for consumables, software related issues, licencing issues, or inability to place equipment on maintainance contract with original manufacturer. This auction is for hardware only.

If an item is sold "as is" no refund available.

Please contact me if you have won more than one auction and I will reduce the cost of shipping per item when sending them together.
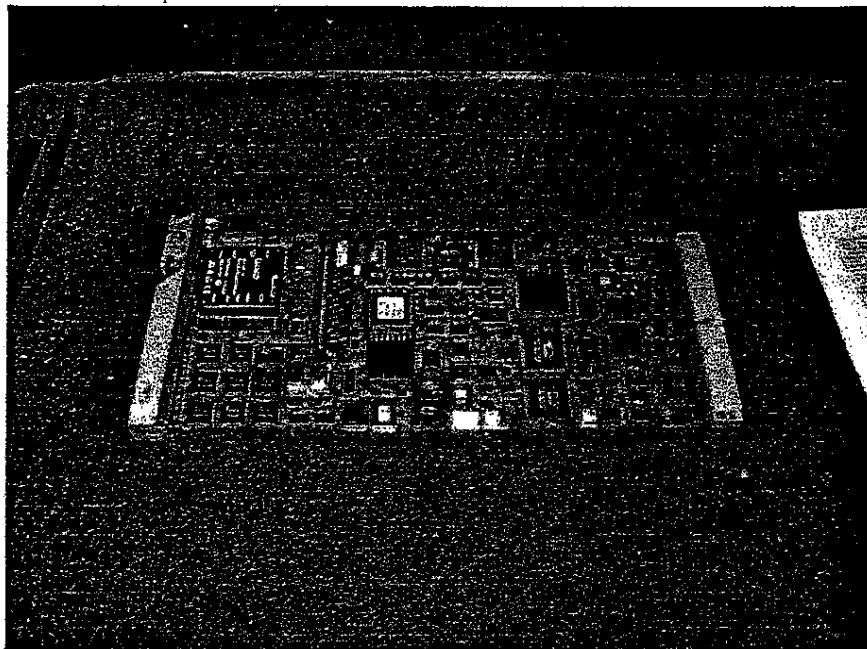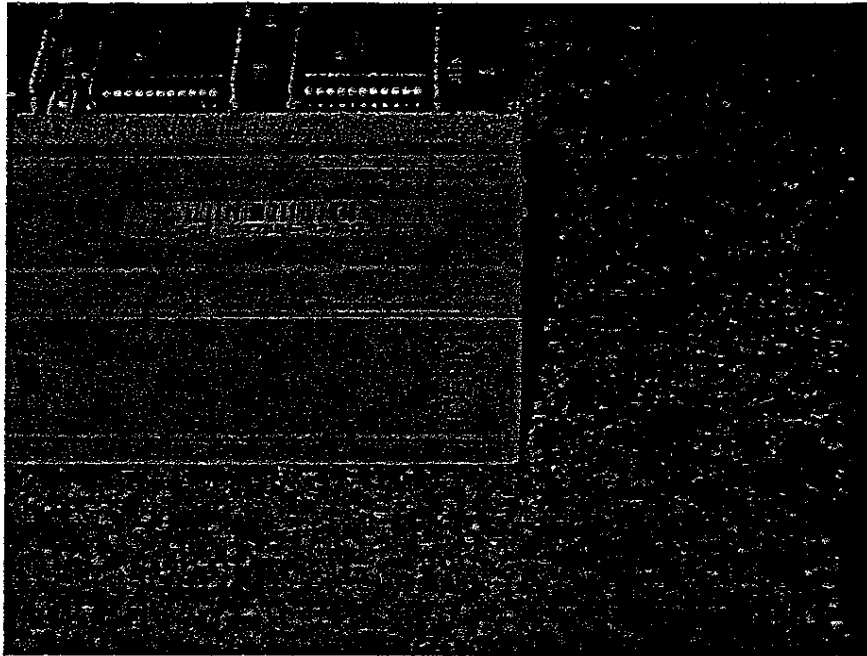
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Payment

I accept the following forms of payment:

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- Direct Offline Credit Card Payment: Visa/Master Card
  - Money Order
  - Personal Check
  - COD

stwflwar

Find more items from the same seller. Bid or Buy Now!

Cisco OC192E/POS-VSR OC-192c/STM-64c POS Mod GSR 12000

0 bids:	US $37,495.00
Buy It Now	US $37,995.00
Time left:	1d 18h 38m

Cisco OC192E/POS-SR-SC 1 Prt OC192c/STM64cPOS GSR 12000

0 bids:	US $37,495.00
Buy It Now	US $37,995.00
Time left:	9d 17h 41m

Cisco DS-C9509 MDS9509 Multilayer Dir WS-X9032 Switch

0 bids:	US $21,395.00
Buy It Now	US $21,495.00
Time left:	9d 1h 38m

Cisco BPX 8620-DC Switch BCC-4V 24x T3 24x OC3

Buy It Now or Best Offer	US $9,995.00

🏬 Visit seller's Store

Shipping, payment details, and return policy
Services available

Check Item description and payment instructions or contact seller for details.

Ships to
Worldwide

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MASTERCARD VISA AMEX DISCOVER ECHECK]	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?   Help
Cisco 8220 MGX Switch MGX-CESM-8T1 8 port T1

Buy It Now   or   **Submit Best Offer**

Buy It Now price: US $795.00

[Buy It Now >] You will confirm in the next step.   [Make Offer >]

Purchase this item now without bidding.   Present your highest offer to the seller.
Learn about Buy It Now.   Learn about Best Offer.

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Back to list of items   Listed in category: Computers & Networking > Networking > Switch Components, Memory > Switch Modules

CISCO MGX 8850 AX-CESM-8T1 CIRCUIT EMULATION MODULE

Item number: 250081491233

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price: US $395.00 [Buy It Now]

Best Offer   [Make Offer]

Shipping costs: Check item description and payment instructions or contact seller for details
Ships to: Worldwide
Item location: Oregon, Salem, United States

You can also: [_____]

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Meet the seller

Seller: 71k (544 ⭐) 🏆 Power Seller
Feedback: 99.5% Positive
Member: since Jun-12-01 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
   🏪 NW Remarketing-Kurt

Buy safely

1. Check the seller's reputation
   Score: 544 | 99.5% Positive
   Read feedback comments
2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Description

NW Remarketing-Kurt

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[Search]

SQUARE TRADE   eBay User ID:
71k
Feb. 13, 2007
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SquareTrade © AP6.0

CISCO MGX 8220 AX-CESM-8T1 CIRCUIT EMULATION MODULE

If you have any questions about this equipment please feel free to call me @ 503.391.8191 x5 (ask for Kurt) or email kurt@wvi.com. I would be happy to answer your questions 8-5 (pacific time zone)

Free Mainland US Shipping if you elect to buy it now!!

Items ship same day on credit card transactions (contingent upon credit card address)

This unit is in excellent condition and comes to you with a 45 day hardware warranty. When new these had a list price of $11,500.00ea. You are bidding on the following:

1 x Cisco AX-CESM-8T1 -- ATM UNI Service Module, Eight T1 Ports

The Cisco T1 circuit emulation service modules (CESMs) are designed for use with the Cisco MGX 8220 edge concentrators, MGX 8230, MGX 8250 and the MGX 8800 series wide-area edge switches. The CESM-8T1 offers eight T1s for structured (channelised) and unstructured (unchannelised) circuit services over an ATM backbone for the new world of data networking.

FREE SHIPPING!!!

When you use BUY IT NOW!

- US Only. Buyer pays actual shipping from zip code 97301 if "Buy it Now" is not elected.

I will ship internationally. I will only accept a bank wire transfer as a payment method however. No I will not ship to Indonesia on a credit card or Paypal account, sorry.

I do not accept Visa or Paypal Payments from anyone with an Ebay rating of less than 10. If your feedback is less than 10 and VISA is the only payment method you have available, contact me BEFORE the end of the auction with three trade references. I have made exceptions to buyers with solid referrals. Thanks.

Payments made with credit or ATM cards must be faxed and authorized by signature. I can only ship to the Billing/Confirmed address in ALL Visa/Paypal transactions.

Payment Options:

Pay me securely with any major credit card through PayPal

- Money Order or Cashier Check
- Mastercard/Visa/Diners/JCB
- Direct Bank Wire Transfer

And the following ATM cards:

- Bank of America
  - Star
  - Interlink
  - Accel
  - Maestro
- Alaska Option

I will ship internationally, hovever Bank Wire transfer is the only payment method I will accept.

I will accept Governmental, Corporate, or Educational Purchase Orders provided you contact me prior to winning the auction. Generally net 15 terms and you meet my guidlines for financial stablility, business reference, etc.

If a refund is necessary, we refund the purchase price. Buyer is responsible for shipping charges to and from our facility.

No refund available for consumables, software related issues, licencing issues, or inability to place equipment on maintainance contract with original manufacturer. This auction is for hardware only.

If an item is sold "as is" no refund available.

Please contact me if you have won more than one auction and I will reduce the cost of shipping per item when sending them together.
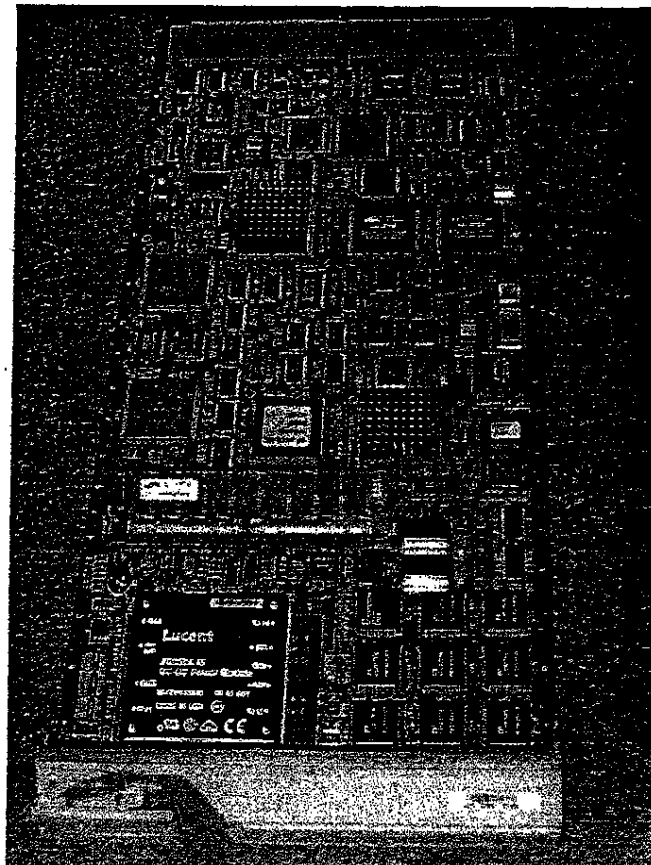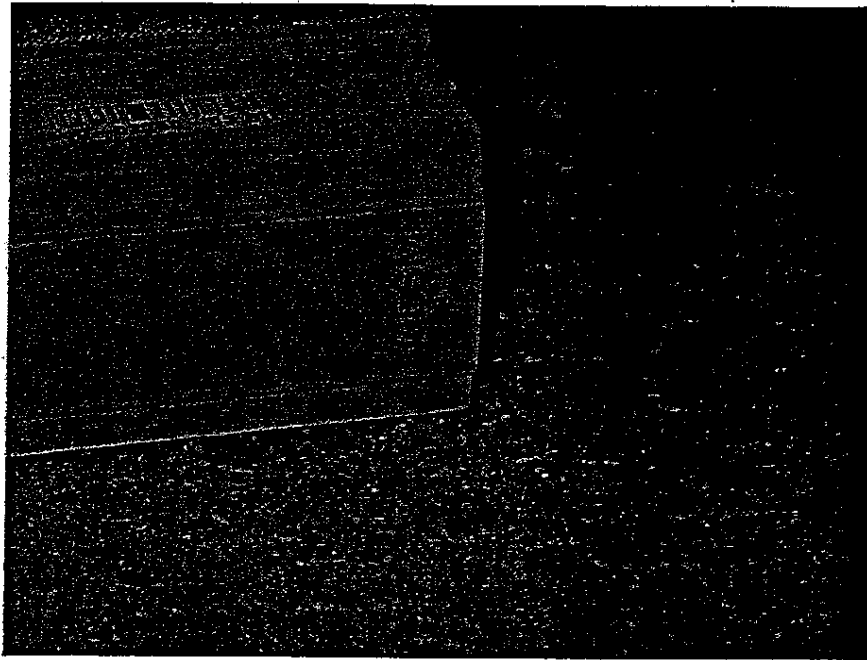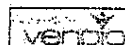
GOOD LUCK!

Payment

I accept the following forms of payment:

- PayPal
- Direct Offline Credit Card Payment: Visa/Master Card
- Money Order
- Personal Check
- COD

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Cisco OC192E/POS-VSR OC-192c/STM-64c POS Mod GSR 12000	Cisco OC192E/POS-SR-SC 1 Prt OC192c/STM64cPOS GSR 12000	Cisco DS-C9509 MDS9509 Multilayer Dir WS-X9032 Switch	Cisco BPX 8620-DC Switch BCC-4V 24x T3 24x OC3
0 bids: US $37,495.00	0 bids: US $37,495.00	0 bids: US $21,395.00	=Buy It Now or Best Offer US $9,995.00
=Buy It Now US $37,995.00	=Buy It Now US $37,995.00	=Buy It Now US $21,495.00	
Time left: 1d 18h 38m	Time left: 9d 17h 41m	Time left: 9d 1h 37m	

Visit seller's Store

Shipping, payment details, and return policy
Services available

Check item description and payment instructions or contact seller for details.

Ships to
Worldwide

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MasterCard] [VISA] [AMEX] [Discover] [eCheck]	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?
CISCO MGX 8850 AX-CESM-8T1 CIRCUIT EMULATION MODULE

Help

Buy It Now   or   **Submit Best Offer**

=Buy It Now price: US $395.00   Make Offer >

Buy It Now You will confirm in the next step.

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Learn about Buy It Now.

Present your highest offer to the seller.
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Back to list of items   Listed in category: Computers & Networking > Other Hardware & Services > Other Hardware > Other

CISCO AX-CESM-8T1 8200 8 port T1 front card CESM AXCESM

Item number: 120075832232

Buyer or seller of this item? Sign in for your status

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IBM TOSHIBA hp
Sun
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since 1997

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Buy It Now price: US $1,452.40   Buy It Now

Get It Fast As soon as February 15 (conditions)

Shipping costs: US $15.95 (discount available)
                 UPS Ground
                 Service to United States
                 (more services)
Ships to: Worldwide
Item location: San Diego USA, United States
Quantity: 8 available
History: Purchases

You can also: Watch this item

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Sell one like this

Listing and payment details: Show

Meet the seller

Seller: it equipment xpress (2312 ⭐) me
Feedback: 98.7% Positive
Member: since Jun-12-97 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
    🏪 IT Equipment Express

Buy safely

1. Check the seller's reputation
   Score: 2312 | 98.7% Positive
   Read feedback comments

2. Check how you're protected

   PayPal This item is covered up to $2,000 See
           eligibility
   Returns: Seller accepts returns.

   14 Days Money Back

Description

IT Equipment Express > Other

IT Equipment Express

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Email: auctions@codemicro.com

Toll Free / In the USA   Outside the USA
866-419-6615   **760-806-2731**

Hours: Monday-Friday 7:00 AM-5:00 PM Pacific Time

Manufacturer: CISCO
Part Number: AX-CESM-8T1
Description: CISCO AX-CESM-8T1 8200 8 port T1 front card CESM AXCESM8T1

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sellers and proud to be a

IT Equipment Xpress

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since 1997

CISCO AX-CESM-8T1 8200 8 port T1 front card CESM AXCESM

Condition: This item is refurbished, and in good condition. This item is guaranteed against DOA and defect.

Comment: This is a genuine, original part.

Warranty: 14 days from receipt of goods. Guaranteed against DOA and defect. Additional Warranty Information.

Quantity Available: See Above. Additional units may be available. Please call us: if available we can add them to the auction.

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*** We guarantee your satisfaction ***

We take very good care of our customers: see our Feedback. If an item is defective we will replace it for you.
Actual customer comments:
"Ultrafast delivery, nice contact, no probs, thank you very much" compermed.
"Quick ship, oringal packaging, good deal" iiflood3.
"Incorrect item, but full refund offered. Good service." billkohlerphoto

*** You can't go wrong bidding on this ***

Contact Info: Click Here. If you have any questions, before bidding or after you have won an auction, give us a call at 760-806-2731, we are available 7am–5pm Pacific Time, Monday-Friday.

About Us: Since 1994 Code Micro Inc has been a trusted IT spare part and system distributor. Our reputation for quality product and customer service has made us a valued partner to numerous Fortune 500 companies and US Government agencies alike. We have been an eBay member since June 1997, and we are proud of our Feedback, a reflection of how we value you.

STORE SEARCH

Shipping

Shipping: Most items are available for immediate shipping. Many domestic orders received before 3 PM Pacific Time will ship same day! We ship worldwide. Expedited and blind shipping service available - please contact us. Shipping rates: see below. Flat rates are shown - in some rare cases (for instance: chassis, racks, monitors, printers, battery backups) due to weight and/or dimension actual rates may vary. If you have any questions, please contact us beforehand and we will provide you with actual rates. If you have already purchased the item and the actual rate varies from the flat rate, we will contact you.

☑ in titles & descriptions

Search

United States Shipping

Warranty

United States Shipping Details

- All packages shipped via UPS/Fedex Ground to the 48 continental states only.
- This shipping price covers all shipping and handling charges.
- UPS 3 Day Select℠, UPS 2nd Day Air, and UPS Next Day Air®Shipping is available at an additional charge, see auction details.

Satisfaction Guarantee:

100% guarantee against defect, or your money back!

PayPal Buyer's Protection up to $1000!

Payment Methods

via UPS / Fedex
Ground Shipping

$15

(48 States)

---

via UPS / Fedex
2nd Day Air

$39

Alaska, Hawaii, APO/FPO
& Puerto Rico

Alaska, Hawaii, and Puerto Rico
Shipping Details

- Packages shipped via UPS or Fedex 2nd Day Air
- This shipping price covers all shipping and handling charges.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details.

International Shipping

Via USPS
EXPRESS MAIL

via UPS / Fedex
International Shipping

Canada
$32

Australia & New Zealand
$86

Europe, Mexico & South America
$86

S.E. Asia, Africa & Middle East
$86

Above pricing covers shipping and handling.

International Shipping Details

- International orders may be subject to local customs and duties, for which Buyer is solely responsible.
- To prepare item and documents for international shipping, allow 2-4 business days before item will be shipped.
- This shipping price covers all shipping & handling charges. Shipping costs may vary; if so, we will contact you.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details

$ Payment Details

We prefer Paypal (Free Buyer's Protection up to $1000!) , but we also accept Credit Cards, Money Orders, Purchase Orders and Cashiers Checks. Auction winners must claim and pay within 7 days of auction close. If you do not pay or respond within 7 days, we will file an Unpaid Item Strike to eBay and reserve the right to leave negative feedback. California Residents add 7.75% sales tax.

Payment Instructions: Simply use eBay's checkout. You will then be able to pay using Paypal or other methods.

NEW! **Free coverage up to $1,000**

? Policies

14 Day - Satisfaction Guarantee Policy

Warranty: All items we list on Ebay are warranted against DOA and defect. This is a limited warranty: we do not guarantee compatibility with your software and/or hardware. See auction page for details.

Satisfaction Guarantee: 100% guarantee against defect, or your money back! If we cannot replace the item, we will refund your money.

Return Policy: Defective items must be returned to us within 14 days of receipt of goods. Buyer pays for return shipping. No returns accepted without a Return Merchanized Authorization (RMA). Shipping costs are non-refundable.

Please make sure this is the item you need. Although we warrant item to be in good working condition, we cannot guarantee compatibility with your equipment or software. If any doubt, or need more information, please contact us before purchasing: we cannot take items back because you didn't check beforehand.

- Your questions are important to us. Please call us with any of your questions. We are open between 7:00 am and 5:00 pm (PST) Monday through Friday.

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IT Equipment Xpress

IBM TOSHIBA

Sun

eBay

since 1997

Save up to $4.00 shipping for each additional item from this seller's other listings!*

HP 335206-B21 PROLIANT DL 760 XEON 2.8/2MB 4PC KIT 3352	NORTEL AG2104042 Octai Sync w/128 Contexts Hardware Com	HP 364635-001 DL580G3 X3.33GHz 8MB 2P US RACK SRVR 3646	IBM 25R0168 DS4300 WITH TURBO ENHANCED 25R0168
=Buy It Now US $28,386.90	=Buy It Now US $28,225.06	=Buy It Now US $27,262.50	=Buy It Now US $26,953.00
Time left: 1d 1h 53m	Time left: 1d 20h 4m	Time left: 1d 1h 49m	Time left: 21h 30m

Visit seller's Store

Shipping, payment details, and return policy

Save up to $4.00 shipping for each additional item from this seller's other listings!
Learn about shipping discounts

Ships to
Worldwide

Country:	United States		Quantity:	1		
Shipping and Handling	**Each Additional Item**	**To**		**Service**		
US $15.95	+ $7.45	United States		UPS Ground 1 to 5 business days*		
US $39.95	+ $20.45	United States		UPS 2nd Day Air® Guaranteed in 1-2 days*		
US $60.95	+ $30.45	United States		UPS Next Day Air Saver® Guaranteed by next day*		

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Domestic Handling Time
Will usually ship within 1 business day of receiving cleared payment.

Get it Fast Get your item as soon as February 15 when you select UPS Next Day Air Saver® for US $60.95.

Shipping insurance
Included (in the shipping and handling cost)

Seller's return policy:
Item must be returned within: 14 Days   Refund will be given as: Money Back
Return Policy Details: Buyer has 14 days from the receipt of goods to return defective item to us for exchange. Details are on our Ebay Store page at
http://stores.ebay.com/IT-Equipment-Express/Warranty.html

Sales tax

Seller charges sales tax for items shipped to: CA (7.750%).

Payment methods accepted

This seller, it_equipment_xpress, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MasterCard] [VISA] [AMEX] [DISCOVER] [ECHECK]	Seller Preferred	**PayPal** This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?

CISCO AX-CESM-8T1 8200 8 port T1 front card CESM AXCESM

Buy It Now price: US $1,452.40

Your Quantity: x 1

[Buy It Now >] You will confirm in the next step.

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Back to list of items   Listed in category: Computers & Networking > Networking > Switches > Cisco > Other Cisco Catalyst Switches
Also listed in: Computers & Networking > Networking > Router Components, Memory > Cisco Components, Memory > Network Modules (NM)

Cisco WAI-E1C-4BNC CES E1 75 Lightstream 1010 Module

Item number: 120064839559

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend
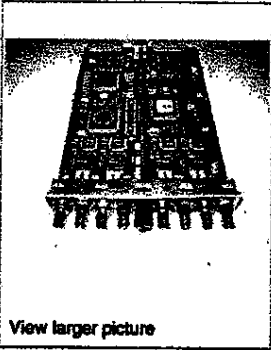
Buy It Now price: US $99.99 [   ]

End time: Feb-15-07 11:02:45 PST (1 day 19 hours)

Shipping costs: US $14.99
UPS Ground
Service to United States

Ships to: United States

Item location: Baltimore, MD, United States

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Listing and payment details: Show

Make no payments for 3 months
and pay no interest if paid in 3 months on your first purchase over $50 with the PayPal Plus Credit Card.
Plus, earn rewards on every purchase you make! Get the PayPal Plus Credit Card and use anywhere
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Meet the seller

Seller: cdmcomputersales (1450 ★) Power Seller

Feedback: 99.1% Positive

Member: since Sep-15-03 in United States

- Read feedback comments
- Ask seller a question
- Add to Favorite Sellers
- View seller's other items: Store | List
- Visit seller's Store:
  CDM Computer Store

Buy safely

1. **Check the seller's reputation**
   Score: 1450 | 99.1% Positive
   Read feedback comments

2. **Check how you're protected**
   PayPal   This item is covered up to
   $2,000 See eligibility

Description

Computer Donation Management, Inc.

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CDM
Has years of experience
working with computer
equipment.

CDM
Will assist you with your
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purchasing process
painless.

CDM
Has live support on AOL
Instant Messenger to
answer any questions you
may have.

CDM
Has the lowest prices and a
large inventory. Don't see
what you need - just ask!

CONTACT US:
ebay@cdm4recycle.com
AIM: CDM eBay Sales

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OTHER AUCTIONS!

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EBAY STORE!

:. Product Information

Cisco CES E1 75 Module

Model: E1 WAI-E1C-4BNC
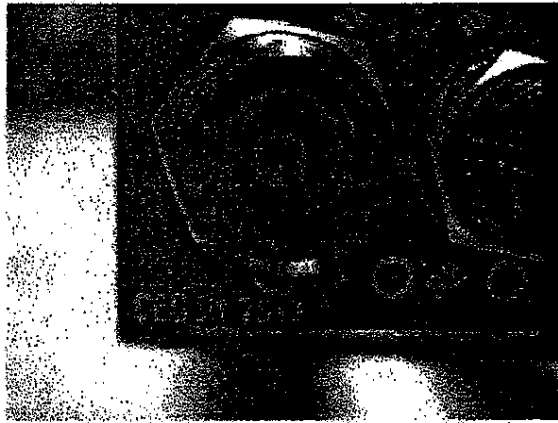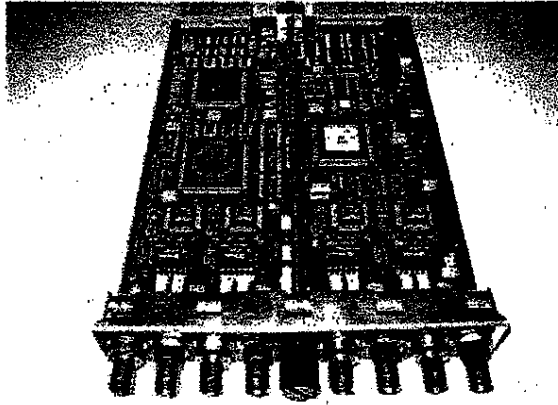
Module is guaranteed to be NON-DOA!

Shipping Info: $14.99

Check out our other computer auctions! Click Here!
Contact us:
ebay@cdm4recycle.com
AIM: Repo212

ref #1137

:. Product Pictures

:. Payment

We prefer Paypal! Our paypal address is: ebay@cdm4recycle.com

Also accepted are money orders.
Send To:

Computer Donation Management, Inc.
1623 Wicomico Street
Baltimore, MD 21230

We do not accept any personal or business checks, unless purchase price is over $500.00 - contact us for details.

Wire transfers are available for purchases greater than $500.00 - contact us for details.

Payment is due within three business days of the end of auction.

Sales tax will be added for all Maryland residents - 5%.

:. Shipping

Items are shipped UPS Ground, unless stated otherwise.

We only ship to USA residents! Unless stated otherwise.

HI and AK buyers will be charged an increased shipping rate - contact us for details.

Products will be shipped out no later than three days after payment has been received.

Buyer pays for shipping cost.

Tracking numbers will be provided automatically - if you have not received one contact us for proper information.

Pick-up's are welcome (free of charge) from our Baltimore location:
1623 Wicomico Street
Baltimore, MD 21230
Contact us to make arrangements.

MUST Call before picking up! >> (410) 525-1400

:. Terms
Payment is due within three business days of the end of auction.

HI and AK buyers must contact us after auction for updated shipping rates.

US sales only! Unless stated otherwise.

It is assumed all auctions are "as-is" unless stated otherwise.

DOA warranty is offered on all items that have been tested, and in auction description it states DOA. If item is untested, there is NO warranty.

Returns and Refunds:
Shipping costs are NON-Refundable. Any item DOA (according to our terms) is returnable - upon return a refund of the purchase price will be issued. Buyer is required to make claim with shipping service if item was damaged in transport. If you received the wrong item a full refund including shipping cost will be issued. Contact us if there are any problems.

Do not bid if you don't agree with our terms!
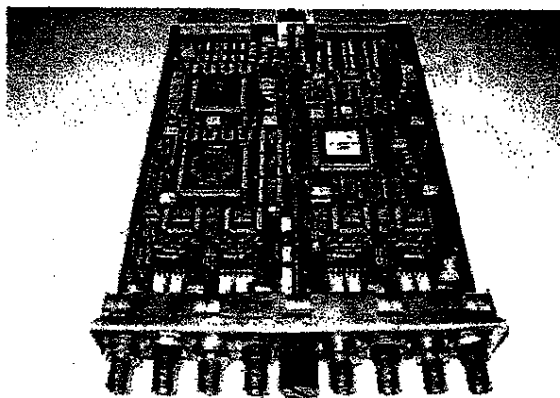
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Cisco 7206 7200 NPE 300 2-POWER SUPPLIES	Cisco Catalyst 3500 3524 Switch WS-C3524-PWR-XL-EN	Lot of 2 LUTRON GRAFIK nava T NTGRX-4S-IR-WH	Lot 50 Brand NEW LABTEC NOTE-502 STEREO HEADPHONES
Buy It Now US $699.99	*Buy It Now* US $399.99	*Buy It Now* US $299.99	*Buy It Now* US $249.99
Time left: 3d 1h 51m	Time left: 5d 17h 22m	Time left: 16h 50m	Time left: 2d 17h 2m

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Shipping, payment details, and return policy

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United States

Country:	United States		
Shipping and Handling	**To**		**Service**
US $14.99	United States		UPS Ground 1 to 6 business days*

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Shipping insurance
Not offered

Sales tax

Seller charges sales tax for items shipped to: MD (5.000%).

Payment methods accepted

This seller, cdmcomputersales, prefers PayPal.

Payment method	**Preferred/Accepted**	**Buyer protection on eBay**
PayPal VISA AMEX	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available

Learn about payment methods.

Ready to buy?
Cisco WAI-E1C-4BNC CES E1 75 Lightstream 1010 Module

Buy It Now price: US $99.99

You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

Help

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Seller assumes all responsibility for listing this item.

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Back to list of items   Listed in category: Computers & Networking > Networking > Switch Components, Memory > Other Switch Components

CISCO WAI-T1C-4RJ48 4-PORT T1C PAM C8510 L1010 (JD)

Item number: 230091407117

Seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

View larger picture

Starting bid:	US $50.00 [Place Bid]
Buy It Now price:	US $80.00 [Buy It Now]
End time:	Feb-22-07 08:22:40 PST (8 days 16 hours)
Shipping costs:	Check item description and payment instructions or contact seller for details
Ships to:	Worldwide
Item location:	OKLAHOMA CITY, OKLAHOMA, United States
History:	0 bids
You can also:	

Get alerts via Text message, IM or Cell phone
Sell one like this

Meet the seller

Seller: maxistechnologies (952 ⭐) Power Seller

Feedback: 99.3% Positive

Member: since Jan-02-02 in United States

- Read feedback comments
- Ask seller a question
- Add to Favorite Sellers
- View seller's other items: Store | List
- Visit seller's Store:
  Maxis Technologies

Buy safely

1. Check the seller's reputation
   Score: 952 | 99.3% Positive
   Read feedback comments

2. Check how you're protected

   PayPal This item is covered up to $2,000 See eligibility

Listing and payment details: Show

Make no payments for 3 months
and pay no interest if paid in 3 months on your first purchase over $50 with the PayPal Plus Credit Card. Plus, earn rewards on every purchase you make! Get the PayPal Plus Credit Card and use anywhere MasterCard is accepted. See details | Apply now

Description

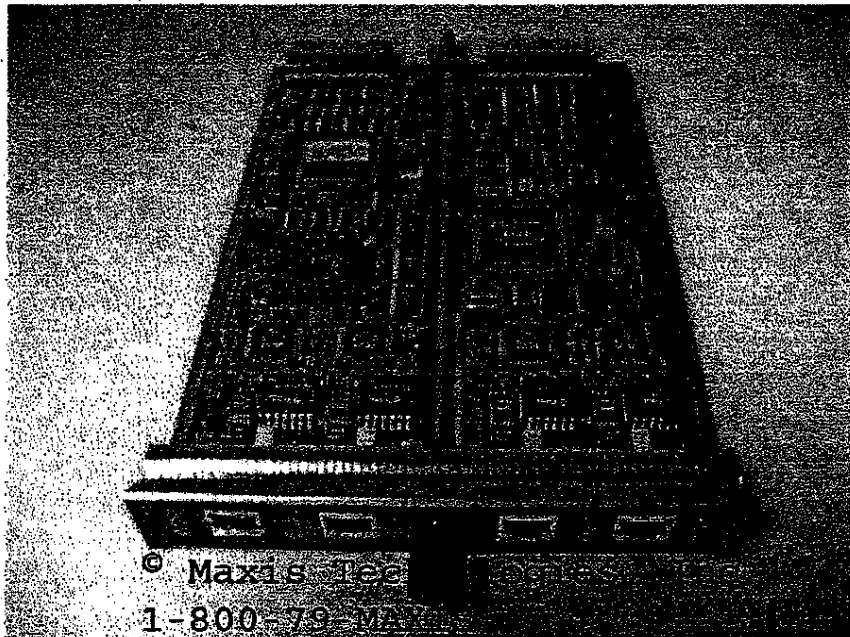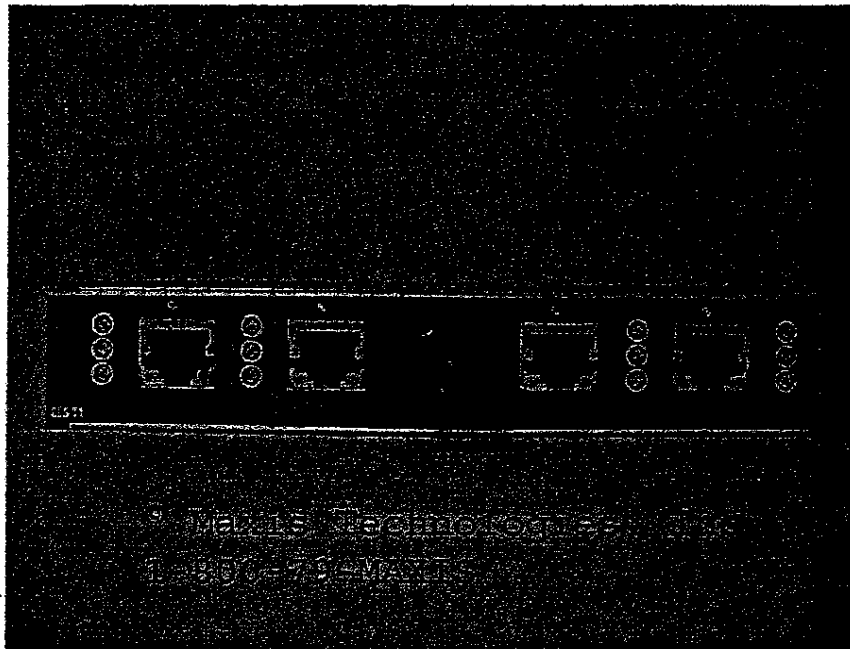SQUARE TRADE

Feb. 13. 2007

eBay User ID:
maxistechnologies

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MAXIS TECHNOLOGIES, INC.   TECH CERTIFIED - BY THE BEST, FOR THE BEST

YOU ARE BIDDING ON

CISCO WAI-T1C-4RJ48

120 DAY WARRANTY!

DESCRIPTION

CISCO WAI-T1C-4RJ48

This auction is for one used/tech certified CISCO WAI-T1C-4RJ48 w/Warranty!

Overview

Cisco offers a wide variety of connectivity, expansion and upgrade modules to accommodate the range of

application needs in customer networks. The network modules assure customers that they can choose a connectivity solution that fits their requirements. As modular components, they are easily and inexpensively field upgradeable as customer's requirements change.

BRAND SELECTION

MAXIS
TECHNOLOGIES, INC.

is a reseller of all major brands of network hardware including:

Cisco Systems, Inc.   Lucent Technologies

Juniper   FOUNDRY NETWORKS   extreme   3com

PAYMENT OPTIONS

1. Credit card (Domestic U.S. transactions)
2. Paypal (Domestic U.S. transactions)
3. COD or Cashier check (Domestic U.S. transactions)
4. Wire transfer, ONLY for all international transactions
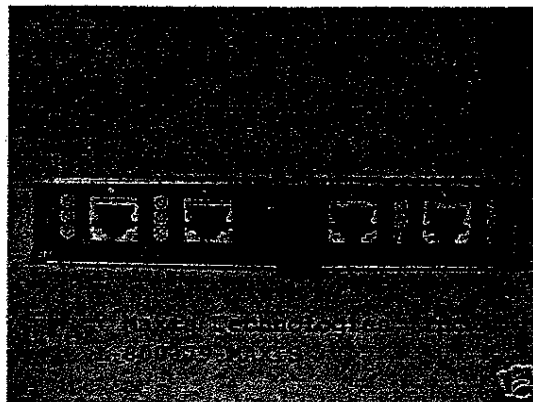5. Will accept Prepayments by personal or company check, money order

PayPal.

WARRANTY

MAXIS
TECHNOLOGIES, INC..

TECH CERTIFIED

For more information about our warranty please view:
http://www.maxistech.net/QualityEbay.html

Thanks for
looking!
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Find more items from the same seller. Bid or Buy Now!

CISCO XENPAK-10GB-SR TRANSCEIVER 10GBASE XENPAK (LD)	CISCO WS-F6K-DFC3A card for 6548 6500 6816 sup720 (JD)	CISCO WS-F6K-DFC3A card for 6548 6500 6816 sup720 (JD)	CISCO WS-F6K-VPWR PoE DAUGHTER CARD FOR 10/100/1000 CS
0 bids: **US $950.00**	0 bids: **US $300.00**	0 bids: **US $300.00**	0 bids: **US $100.00**
Buy It Now US $960.00	*Buy It Now* US $350.00	*Buy It Now* US $350.00	*Buy It Now* US $115.00
Time left: 4d 18h 21m	Time left: 8d 16h 46m	Time left: 8d 16h 46m	Time left: 8d 19h 36m

🏬 Visit seller's Store

Shipping, payment details, and return policy

Services available

Check item description and payment instructions or contact seller for details.

Ships to
Worldwide

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MasterCard VISA AMEX]	Accepted	**PayPal** This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to bid or buy?

Help

CISCO WAI-T1C-4RJ48 4-PORT T1C PAM C8510 L1010 (JD)

Place a Bid   or   **Buy It Now**

Item title:	CISCO WAI-T1C-4RJ48 4-PORT T1C PAM C8510 L1010 (JD)	*Buy It Now* price:	US $60.00

Starting bid: US $50.00

Your maximum bid: US $ [_____] (Enter US $50.00 or more)

[Buy It Now] You will confirm in the next step.

[Place Bid >] You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

eBay automatically bids on your behalf up to your maximum bid.
Learn about bidding.

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Back to list of items   Listed in category: Computers & Networking > Networking > Switches > Cisco > Other Cisco Catalyst Switches

Cisco WAI-T1C-4RJ48 4-port T1 PAM L1010 5000 8500

Item number: 190076063492

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend
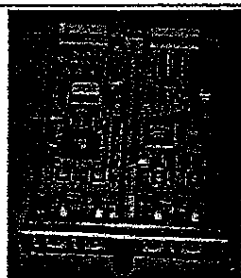
View larger picture

Buy It Now price: US $89.00

Best Offer

Shipping costs: Calculate
Ships to: Worldwide
Item location: Broken Arrow, Ok, United States
Quantity: 5 available
History: Purchases

You can also:

Get alerts via Text message or IM
Sell one like this

Meet the seller

Seller: music_guy21 (1984 ★)
Feedback: 99.8% Positive
Member: since May-23-01 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
   LQ Tech

Buy safely

1. Check the seller's reputation
   Score: 1984 | 99.8% Positive
   Read feedback comments
2. Check how you're protected

   PayPal This item is covered up to $2,000 See eligibility

   Returns: Seller accepts returns.

   7 Days Exchange

Listing and payment details: Show

Make no payments for 3 months
and pay no interest if paid in 3 months on your first purchase over $50 with the PayPal Plus Credit Card. Plus, earn rewards on every purchase you make! Get the PayPal Plus Credit Card and use anywhere MasterCard is accepted. See details | Apply now.

Description (revised)

Item Specifics - Item Condition
   Condition: Used

This is a Cisco 4- Port T1 PAM for Cisco servers. This is compatible with the Cisco LS-1010 and 5000 series, as well as the Cisco Catalyst 8500 series. The model is WAI-T1C-4RJ48. These are fully tested and in grade A "like new" condition (see pictures).

Feel free to contact me with any questions or offers- customer satisfaction is my top priority so bid with confidence!!

Your buy is guaranteed to be as described and pictured- if it is not as described/pictured in the listing you can return the item within 7 days from delivery for full refund minus any applicable shipping charges and providing item is returned in same condition it was sold. See below for DOA warranty due to damage in shipping..

    Please contact me if there are any problems or issues with the item(s) upon receipt. I do my best to check my email several times a day, and will get back to you as soon as possible to resolve any problems you may have.

The cost of shipping is the actual shipping calculated through ebay/UPS website calculator to your zip code using estimated packaged weight of the item as well as shipping insurance. A small packaging fee is added- just enough to cover the expense of purchasing new boxes and foam to assure safe delivery. I do not try to make money off of shipping, and do my best to keep the shipping costs as low as possible.

All items are carefully packed with more then enough packaging material to prevent damage during shipment. Occasional UPS damage occurs through handling. If any damage occurs, a claim will need to be filed/approved by shipping company before refund is made. Contact me in this situation and we will work together to assure that the claim is made and processed, and your refund/replacement is processed quickly.
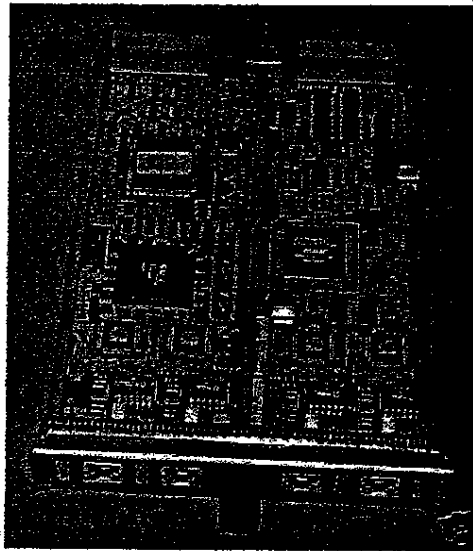
00012
The power of protection from AOL and eBay. Learn more

Save on shipping - buy additional items now from this seller's other listings!

Technipower transformer 3038-4000
aircraft / helicopter

Buy It Now or Best Offer   US $1,395.00

Santa Cruz Bullit frame- 5th element
suspension

Buy It Now or Best Offer   US $945.00

Allied Telesyn Gigabit fiber media
extendr AT-EX1002-10

Buy It Now or Best Offer   US $595.00

Tektronix 1103 Tekprobe power
supply tested w/guarantee

Buy It Now or Best Offer   US $575.00

Visit seller's Store

Shipping, payment details, and return policy

Save on shipping - buy additional items now from this seller's other listings!
Learn about shipping discounts

Ships to
Worldwide

Country:	United States		Zip or postal code:	Quantity:	1	Update

Shipping and Handling	To	Service
Enter zip code	United States	US Postal Service Parcel Post® Estimated delivery 2-9 days*
Enter zip code	United States	US Postal Service Priority Mail® Estimated delivery 2-3 days*
Enter zip code	United States	UPS Ground 1 to 6 business days*

Shipping cannot be calculated for your area. You can contact the seller for additional shipping costs and services.

**Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Shipping Insurance
Not offered

Seller's return policy:
Item must be returned within: 7 Days   Refund will be given as: Exchange

---

Sales tax

Seller charges sales tax for items shipped to: OK (8.750%).

Payment methods accepted

This seller, music_guy21, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal (VISA AMEX)	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Visa/MasterCard	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?   Help
Cisco WAI-T1C-4RJ48 4-port T1 PAM L1010 5000 8500
Buy It Now   or   **Submit Best Offer**

Buy It Now price: US $89.00

Your Quantity: x 1

Buy It Now   You will confirm in the next step.   Present your highest offer to the seller.
                                                         Learn about Best Offer.

Purchase this item now without bidding.
Learn about Buy It Now.

What else can you do?

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Back to list of items   Listed in category: Computers & Networking > Networking > Switches > Cisco > Other Cisco Catalyst Switches

Cisco WAI-T1C-4RJ48 LS1010 Free Ship

Item number: 9703410333

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price:	US $475.00
Best Offer	
Shipping costs:	Check item description and payment instructions or contact seller for details
Ships to:	Worldwide
Item location:	Oregon, Salem, United States
You can also:	
	Get alerts via Text message or IM
	Sell one like this

Listing and payment details: Show

Meet the seller

Seller: 71k (544 ★) Power Seller
Feedback: 99.5% Positive
Member: since Jun-12-01 in United States
- Read feedback comments
- Ask seller a question
- Add to Favorite Sellers
- View seller's other items: Store | List
- Visit seller's Store:
  NW Remarketing-Kurt

Buy safely

1. Check the seller's reputation
   Score: 544 | 99.5% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Description

NW Remarketing-Kurt

Visit my eBay Store: NW Remarketing-Kurt

Search my eBay Store:

Search

SQUARE TRADE   eBay User ID:
71k
Feb. 13, 2007
Member of SquareTrade
Bid with Confidence
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Cisco WAI-T1C-4RJ48 LS1010 Free Ship

If you have any questions about this equipment please feel free to call me @ 503.391.8191 x5 (ask for Kurt) or email kurt@wvi.com. I would be happy to answer your questions 8-5 (pacific time zone)

Free Mainland US Overnight Shipping if you elect to buy it now!!

Items ship same day on credit card transactions (contingent upon credit card address)

This unit is in great shape. It is used and comes to you guaranteed with a 30 day warranty. Free overnight shipping if you buy it now. You are bidding on the following:

1 x Cisco WAI-T1C-4RJ48 -- L1010/8510 4-Port T1 Circuit Emulations Services (CES) Port Adapter Module W/RJ-48 Connectors.

FREE SHIPPING!!!

When you use BUY IT NOW!

- US Only. Buyer pays actual shipping from zip code 97301 if "Buy it Now" is not elected.

I will ship internationally. I will only accept wire transfer as a payment method however. No I will not ship to Indonesia on a credit card or paypal account, sorry.

I do not accept Visa or Paypal Payments from anyone with an Ebay rating of less than 10. If yoru feedback is less than 10 and VISA is the only payment method you have available, contact me BEFORE the end of the auction with three trade references. I have made exceptions to buyers with solid referrals. Thanks.

From time to time even we make a mistake. If I make an honest mistake in an auction I will apologize, I will not sell an item where a gross error in pricing has occurred. This seems reasonable as I would not expect you to pay for an item that was not listed correctly. Thanks.

Payments made with credit or ATM cards must be faxed and authorized by signature. I can only ship to the Billing/Confirmed address in ALL Visa/Paypal transactions.

Payment Options:

Pay me securely with any major credit card through PayPal!

- Money Order or Cashier Check
- Mastercard/Visa/Diners/JCB
- Direct Bank Wire Transfer

And the following ATM cards:

- Bank of America
- Star
- Interlink
- Accel
- Maestro
- Alaska Option

I will ship internationally, hovever Bank Wire transfer is the only payment method I will accept.

I will accept Governmental, Corportate, or Educational Purchase Orders provided you contact me prior to winning the auction. Generally net 15 terms and you meet my guidlines for financial stablility, business reference, etc.

If a refund is necessary, we refund the purchase price. Buyer is responsible for shipping charges to and from our facility.

No refund available for consumables, software related issues, licencing issues, or inablility to place equipment on maintainance contract with original manufacturer. This auction is for hardware only.

If an item is sold "as is" no refund available.

Please contact me if you have won more than one auction and I will reduce the cost of shipping per item when sending them together.
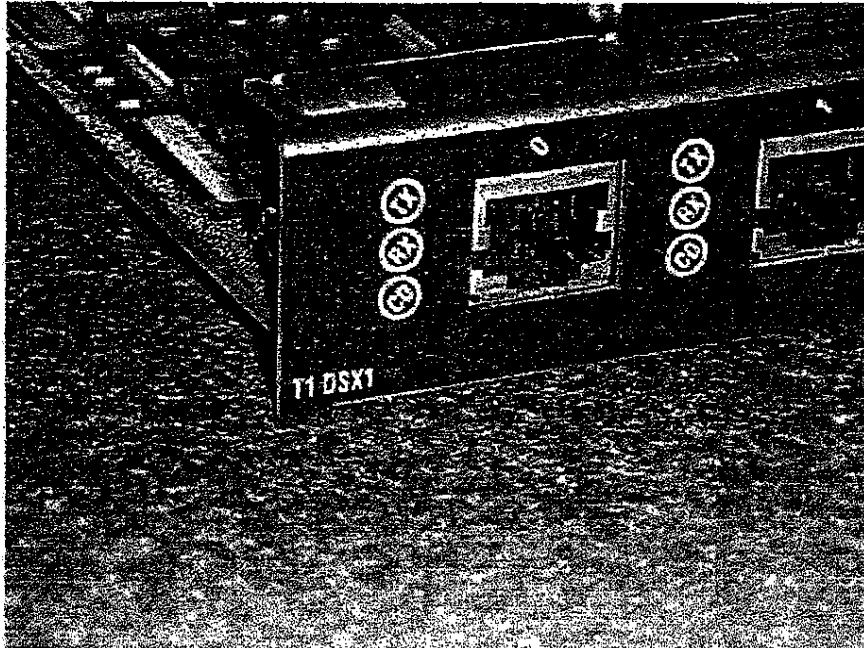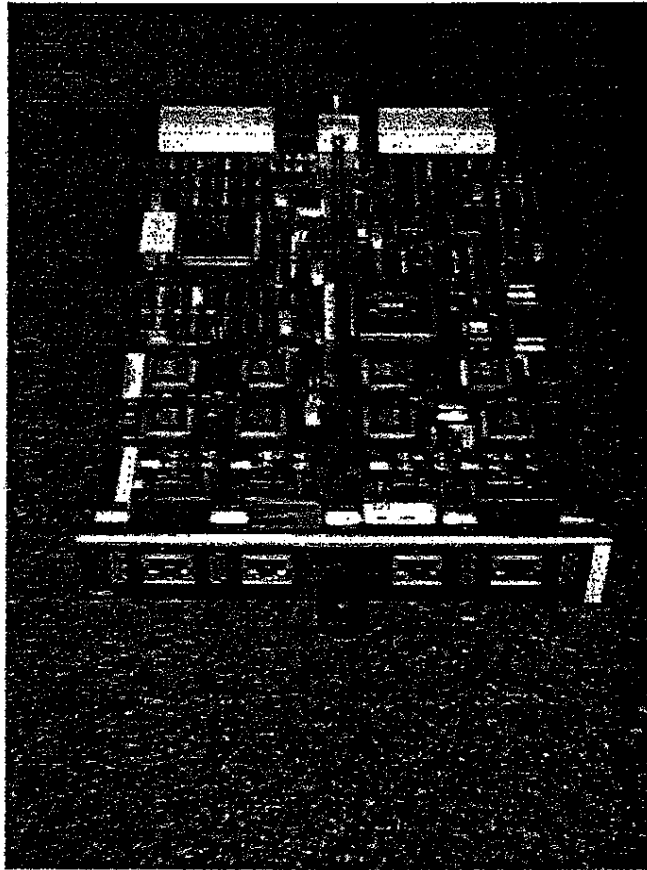
GOOD LUCK!

Payment

I accept the following forms of payment:

- PayPal
- Direct Offline Credit Card Payment: Visa/Master Card
- Money Order
- Personal Check
- COD

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Huge Lucent Ascend B STDX 9000 WAN Switch Lot

Buy it Now or Best Offer US $189,000.00

Cosine IPSX-9500 Service Processing Switch Mega POP lot

Buy it Now or Best Offer US $99,000.00

Sonus GSX 9000 Switch SS7 C7 VOP VOIP 12T-1 GSX9000

Buy it Now or Best Offer US $34,995.00

Time left: 9d 42m

Lucent WaveStar OLS 400G DWDM Multiplexer Lot

Buy it Now or Best Offer US $14,995.00

Visit seller's Store

Shipping, payment details, and return policy

Services available

Check item description and payment instructions or contact seller for details.

Ships to
Worldwide

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal (DISCOVER, VISA, AMEX, MasterCard, CHECK)	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?   Help
Cisco WAI-T1C-4RJ48 LS1010 Free Ship

Buy It Now   *or*   **Submit Best Offer**

Buy It Now price: US $475.00

[Buy It Now] You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

Present your highest offer to the seller.
Learn about Best Offer.

What else can you do?

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⬅ Back to list of items   · Listed in category: Computers & Networking > Other Hardware & Services > Other Hardware > Other

CISCO WAI-T1C-4RJ48 5500/8500 WAI 4 t1 card C version W

Item number: 120075854559

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

IT Equipment Xpress
IBM TOSHIBA
ebaY
since 1997

View larger picture

Buy it Now price: US $492.97

Get it Fast As soon as February 15 (conditions)

Shipping costs: US $15.95 (discount available)
UPS Ground
Service to United States
(more services)

Ships to: Worldwide
Item location: San Diego USA, United States
Quantity: 6 available
History: Purchases

You can also:

Get alerts via Text message or IM
Sell one like this

Listing and payment details: Show

Meet the seller
Seller: it_equipment_xpress (2312 ⭐) me
Feedback: 98.7% Positive
Member: since Jun-12-97 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
  🏪 IT Equipment Express

Buy safely
1. **Check the seller's reputation**
   Score: 2312 | 98.7% Positive
   Read feedback comments
2. **Check how you're protected**
   PayPal This item is covered up to $2,000 See eligibility
   Returns: Seller accepts returns.

   14 Days Money Back

Description

IT Equipment Express > Other

IT Equipment Express

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ebaY
PowerSeller

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FREE $1,000 Coverage On This Auction

IT Equipment Xpress
Email: auctions@codemicro.com
Toll Free / In the USA   Outside the USA
866-419-6615   760-806-2731
Hours: Monday-Friday 7:00 AM-5:00 PM Pacific Time

Manufacturer: CISCO
Part Number: WAI-T1C-4RJ48
Description: CISCO WAI-T1C-4RJ48 5500/8500 WAI 4 t1 card C version WAIT1C4RJ48

Fast Shipping   Quality Products   Great Service

Buy with Confidence
Since 1997 we are one
of eBay's most TRUSTED
sellers and proud to be a
member of these fine

IT Equipment Xpress

IBM. TOSHIBA (hp)

Sun

eBay

since 1997

CISCO WAI-T1C-4RJ48 5500/8500 WAI 4 t1 card C version W

Condition: This item is refurbished, and in good condition. This item is guaranteed against DOA and defect.

Comment: This is a genuine, original part.

Warranty: 14 days from receipt of goods. Guaranteed against DOA and defect. Additional Warranty Information.

Quantity Available: See Above. Additional units may be available. Please call us: if available we can add them to the auction.

organizations:

eBay PowerSeller

PayPal VERIFIED

SQUARE TRADE

p@sa Member

Worldwide Shipping

We ship around the globe using these trusted carriers:

FedEx Express

UPS

USPS

*** We guarantee your satisfaction ***

We take very good care of our customers: see our Feedback. If an item is defective we will replace it for you.
Actual customer comments:
"Ultrafast delivery, nice contact, no probs, thank you very much" compermed.
"Quick ship, oringal packaging, good deal" jjflood3.
"Incorrect item, but full refund offered. Good service." billkohlerphoto

*** You can't go wrong bidding on this ***

Contact Info: Click Here. If you have any questions, before bidding or after you have won an auction, give us a call at 760-806-2731, we are available 7am-5pm Pacific Time, Monday-Friday.

About Us: Since 1994 Code Micro Inc has been a trusted IT spare part and system distributor. Our reputation for quality product and customer service has made us a valued partner to numerous Fortune 500 companies and US Government agencies alike. We have been an eBay member since June 1997, and we are proud of our Feedback, a reflection of how we value you.

STORE SEARCH

Shipping

☑ in titles & descriptions

Search

Shipping: Most items are available for immediate shipping. Many domestic orders received before 3 PM Pacific Time will ship same day! We ship worldwide. Expedited and blind shipping service available - please contact us. Shipping rates: see below. Flat rates are shown - in some rare cases (for instance: chassis, racks, monitors, printers, battery backups) due to weight and/or dimension actual rates may vary. If you have any questions, please contact us beforehand and we will provide you with actual rates. If you have already purchased the item and the actual rate varies from the flat rate, we will contact you.

United States Shipping

Warranty

Satisfaction Guarantee:

100% guarantee against defect, or your money back!

PayPal Buyer's Protection up to $1000!

United States Shipping Details

- All packages shipped via UPS/Fedex Ground to the 48 continental states only.
- This shipping price covers all shipping and handling charges.
- UPS 3 Day Select℠, UPS 2nd Day Air, and UPS Next Day Air®Shipping is available at an additional charge, see auction details.

Payment Methods

via UPS / Fedex
Ground Shipping

$15

(48 States)

---

via UPS / Fedex
2nd Day Air

$39

Alaska, Hawaii, APO/FPO
& Puerto Rico

Alaska, Hawaii, and Puerto Rico Shipping Details

- Packages shipped via UPS or Fedex 2nd Day Air
- This shipping price covers all shipping and handling charges.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details.

International Shipping

Via USPS EXPRESS MAIL
via UPS / Fedex
International Shipping

Canada **$32**   Australia & New Zealand **$86**

Europe, Mexico & South America **$86**   S.E. Asia, Africa & Middle East **$86**

Above pricing covers shipping and handling.

International Shipping Details

- International orders may be subject to local customs and duties, for which Buyer is solely responsible.
- To prepare item and documents for international shipping, allow 2-4 business days before item will be shipped.
- This shipping price covers all shipping & handling charges. Shipping costs may vary; if so, we will contact you.
- UPS/Fedex Next Day Air Shipping is available at an additional charge. See auction details

$ Payment Details

We prefer Paypal (Free Buyer's Protection up to $1000!) , but we also accept Credit Cards, Money Orders, Purchase Orders and Cashiers Checks. Auction winners must claim and pay within 7 days of auction close. If you do not pay or respond within 7 days, we will file an Unpaid Item Strike to eBay and reserve the right to leave negative feedback. California Residents add 7.75% sales tax.

Payment Instructions: Simply use eBay's checkout. You will then be able to pay using Paypal or other methods.

NEW! Free coverage up to $1,000

7 Policies

14 Day - Satisfaction Guarantee Policy

Warranty: All items we list on Ebay are warranted against DOA and defect. This is a limited warranty: we do not guarantee compatibility with your software and/or hardware. See auction page for details.

Satisfaction Guarantee: 100% guarantee against defect, or your money back! If we cannot replace the item, we will refund your money.

Return Policy: Defective items must be returned to us within 14 days of receipt of goods. Buyer pays for return shipping. No returns accepted without a Return Merchanized Authorization (RMA). Shipping costs are non-refundable.

Please make sure this is the item you need. Although we warrant item to be in good working condition, we cannot guarantee compatibility with your equipment or software. If any doubt, or need more information, please contact us before purchasing: we cannot take items back because you didn't check beforehand.

- Your questions are important to us. Please call us with any of your questions. We are open between 7:00 am and 5:00 pm (PST) Monday through Friday.

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IT Equipment Xpress

IBM. TOSHIBA

Sun

eBay

since 1997

Save up to $4.00 shipping for each additional item from this seller's other listings!*

HP 335206-B21 PROLIANT DL 760 XEON 2.8/2MB 4PC KIT 3352	NORTEL AG2104042 Octal Sync w/128 Contexts Hardware Com	HP 364635-001 DL580G3 X3.33GHz 8MB 2P US RACK SRVR 3646	IBM 25R0168 DS4300 WITH TURBO ENHANCED 25R0168
Buy It Now US $28,386.90	Buy It Now US $28,225.06	Buy It Now US $27,262.50	Buy It Now US $26,953.00
Time left: 1d 1h 49m	Time left: 1d 20h	Time left: 1d 1h 45m	Time left: 21h 27m

Visit seller's Store

Shipping, payment details, and return policy

Save up to $4.00 shipping for each additional item from this seller's other listings!
Learn about shipping discounts

Ships to
Worldwide

Country: United States	Quantity: 1		
Shipping and Handling	**Each Additional Item**	**To**	**Service**
US $15.95	+ $7.45	United States	UPS Ground 1 to 6 business days*
US $39.95	+ $20.45	United States	UPS 2nd Day Air® Guaranteed in 1-2 days*
US $60.95	+ $30.45	United States	UPS Next Day Air Saver® Guaranteed by next day*

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Domestic Handling Time
Will usually ship within 1 business day of receiving cleared payment.

Get it Fast Get your item as soon as February 15 when you select UPS Next Day Air Saver® for US $60.95.

Shipping insurance
Included (in the shipping and handling cost)

Seller's return policy:
Item must be returned within: 14 Days   Refund will be given as: Money Back
Return Policy Details: Buyer has 14 days from the receipt of goods to return defective item to us for exchange. Details are on our Ebay Store page at
http://stores.ebay.com/IT-Equipment-Express/Warranty.html

Sales tax

Seller charges sales tax for items shipped to: CA (7.750%).

Payment methods accepted

This seller, it_equipment_xpress, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal VISA AMEX	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Personal check	Accepted	Not Available
Visa/MasterCard, Amex, Discover	Accepted	See your credit card issuer's terms

Learn about payment methods.

Ready to buy?   Help

CISCO WAI-T1C-4RJ48 5500/8500 WAI 4 t1 card C version W

Buy It Now price: US $492.97

Your Quantity: x 1

[Buy It Now >]   You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

What else can you do?

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⊕ Back to list of items   Listed in category: Computers & Networking > Networking > Switch Components, Memory > Switch Modules

C85MS-SCAM-2P w/ WAI-T1C-4RJ48 Catalyst 8540 WARRANTY

Item number: 9729340321

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

View larger picture

⸗*Buy It Now* price: US $1,899.00   **BUY IT NOW**

Best Offer   **Make Offer**

Make no payments for 3 months Apply

Shipping costs: US $25.00
UPS Ground
Service to United States
(more services)

Ships to: United States, Canada

Item location: Tampa, Florida, United States

You can also:

Get alerts via Text message or IM
Sell one like this

Listing and payment details: Show

Meet the seller

Seller: aplustp (2971 ★) ⏣ Power Seller
Feedback: 99.9% Positive
Member: since Aug-24-04 in United States
* Read feedback comments
* Ask seller a question
* Add to Favorite Sellers
* View seller's other items: Store | List
* Visit seller's Store:
  📷 A Plus Technology Partners Inc

Buy safely

1. Check the seller's reputation
   Score: 2971 | 99.9% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility
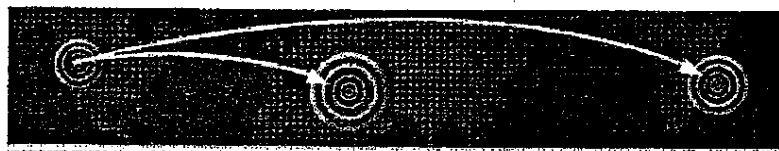   Returns: Seller accepts returns.
   30 Days Money Back

Description (revised)

Item Specifics - Item Condition
Condition: Used

A Plus Technology Partners Inc

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SQUARE TRADE
Feb. 13. 2007

eBay User ID:
aplustp

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Cisco C85MS-SCAM-2P Expansion Module

With

WAI-T1C-4RJ48 (4-Port T1 with RJ48 Interface)

Excellent Condition. Pulled from working 8540 Switch. 30 Day Warranty

Flat rate shipping of $25 to US and $45 to Canada, Alaska, Hawaii and Puerto Rico. Florida residents please add 7% sales tax.

Powered by eBay Turbo Lister

stwflwar

On Jun-28-06 at 09:56:27 PDT, seller added the following information:

Pay for this online auction using BidPay® - Seller BidPay ID: Melissarollo

BidPay.com

On Oct-20-06 at 08:55:01 PDT, seller added the following information:

Our shipping and handling charges cover expedited processing - your order will be packed and shipped within 24 hours of payment Monday through Friday. Custom packaged with instapak foam or securely bubblewrapped for safe shipment. Your item will be shipped UPS ground or USPS priority for quick delivery unless otherwise stated.
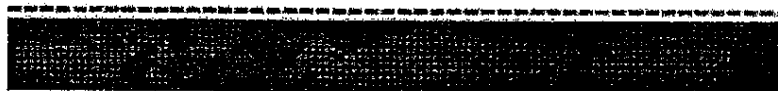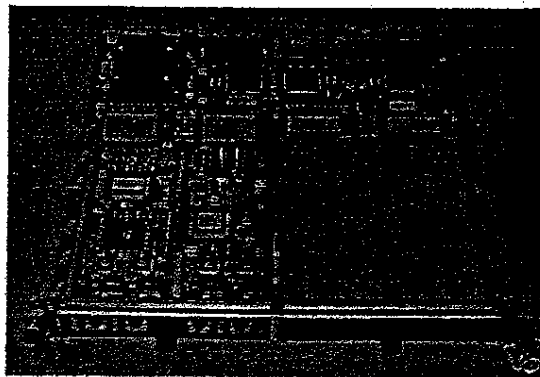
0004
FREE Counters and Services from Andale

Find more items from the same seller. Bid or Buy Now!
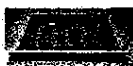
Cisco WS-X5234-RJ45 24-Port 10/100BaseTX Switch Module	Cisco WS-X5234-RJ45 24-Port 10/100BaseTX Switch Module	Cisco Catalyst 5500 Power Supply 34-0773-03/WS-C5508	Cisco Catalyst 5000 388 Watt AC Power Supply 34-0640-02
Buy It Now US $99.00	*Buy It Now* US $99.00	0 bids: US $39.99 *Buy It Now* US $59.99 Time left: 3d 21h 8m	*Buy It Now* US $24.99

Visit seller's Store

Shipping, payment details, and return policy

Ships to
United States, Canada

Country: United States		
Shipping and Handling	**To**	**Service**
US $25.00	United States	UPS Ground 1 to 6 business days

*Sellers are not responsible for service transit time. This information is provided by the carrier and excludes weekends and holidays. Note that transit times may vary, particularly during peak periods.

Shipping insurance
Included (in the shipping and handling cost)

Seller's payment instructions
Please complete checkout through ebay.

Seller's return policy:
Item must be returned within: 30 Days
Return Policy Details: Seller not responsible for damage during shipping. Buyer responsible for return costs.

Refund will be given as: Money Back

Sales tax

Seller charges sales tax for items shipped to: FL (7.000%).

Payment methods accepted

This seller, aplusip, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal VISA AMEX	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?   Help
C85MS-SCAM-2P w/ WAI-T1C-4RJ48 Catalyst 8540 WARRANTY
Buy It Now   or   Submit Best Offer

Buy It Now price: US $1,899.00

You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

Present your highest offer to the seller.
Learn about Best Offer.

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Back to list of items   Listed in category: Computers & Networking > Networking > Router Components, Memory > Cisco Components, Memory > Port Adapters (PA)

CISCO PA-A2-4T1C-T3ATM

Item number: 330086327417

Seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

View larger picture

Starting bid:	US $345.67 Place bid >
Buy it Now price:	US $369.01 Buy It Now
	Make no payments for 3 months Apply
End time:	20 hours (Feb-14-07 11:37:42 PST)
Shipping costs:	Check item description and payment instructions or contact seller for details
Ships to:	United States
Item location:	Garden Grove, CA, United States
History:	0 bids
You can also:	Watch this item

Get alerts via Text message, IM or Cell phone
Sell one like this

Meet the seller

Seller: ryaninbiz (133 ☆) Power Seller
Feedback: 99.3% Positive
Member: since Jul-29-00 in United States
- Read feedback comments
- Ask seller a question
- Add to Favorite Sellers
- View seller's other items

Buy safely

1. Check the seller's reputation
   Score: 133 | 99.3% Positive
   Read feedback comments

2. Check how you're protected
   PayPal This item is covered up to $2,000 See eligibility

Listing and payment details: Show

Description

Item Specifics - Item Condition
       Condition: **Used**

Item Description:

(1) CISCO PA-A2-4T1C-T3ATM ATM CES port adapter, 4T1 CES ports

*** I also have other CISCO equipments such as routers, switches, network modules, port adaptors, power supplies,.....
   Please contact me if you need any other Cisco equipments. My contact is at the bottom of the page.

YOU MUST AGREE TO THE TERMS AND PAYMENT BELOW BEFORE BIDDING.

CONDITION: Used, tested, working, good physical condition.

WARRANTY: 30 day warranty.

SHIPPING & HANDLING:
       * Buyer is to pay $25.00 domestic shipping & handling fee.
       * **Extremely fast shipping.** We usually ship item out WITHIN 1 business day of receiving cleared payment using FedEx or UPS, and tracking number will be provided shortly.
       * Shipping & handling fee is not refundable.
       * NO LOCAL PICKUP.

* WE WILL DO INTERNATIONAL SHIPPING IF BUYER HAS SHIPPING ACCOUNT WITH FEDEX OR UPS.
* THERE WILL BE $10.00 PROCESSING FEE FOR SHIPPING ON BUYER'S SHIPPING ACCOUNT.

PAYMENT METHOD:
    * We accept paypal. For Paypal payment, your address needs to be CONFIRMED with PAYPAL.
    * Money order/Cashiers check.

**TAXES:** All California residents must pay taxes. For tax exempt, please provide your reseller's permit.

NON PAYING BIDDER: If Payment is not received within 3 business days of auction close, we will contact EBay to leave "non paying bidder" notification. If after 5 business days, payment has not been received, we will leave negative feedback and cancel your purchase.

*** WE RESEVED THE RIGHT TO CANCEL BID TO THE FOLLOWING BIDDERS:
    + BIDDERS WITH NEGATIVE (-) OR LESS THAN TEN (10) FEED BACK
    + BIDDERS WHO HAD BAD TRANSACTION WITH US BEFORE
    + INTERNATIONAL BIDDERS (WE DON'T SHIP INTERNATIONAL IF BIDDER DOESN'T HAVE A SHIPPING ACCOUNT WITH FEDEX OR UPS)

CONTACT: ryantnbiz@yahoo.com;   **AIM:** ryantnbiz;   **Yahoo! messenger:** ryantnbiz

MY MAIN CONTACT IS EMAIL OR IM. PLEASE EMAIL FIRST BEFORE CALLING.
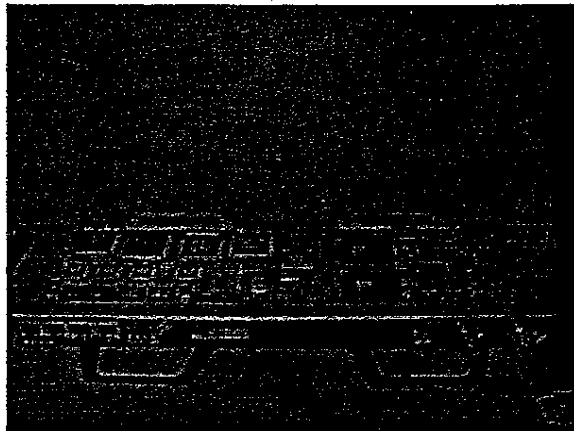
00015
The power of protection from AOL and eBay. Learn more

Shipping, payment details, and return policy
Services available

Check item description and payment instructions or contact seller for details.

Ships to
United States

Payment methods accepted
This seller, ryantnbiz, prefers PayPal.

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [VISA AMEX DISCOVER eCHECK]	Seller Preferred	PayPal This item is covered up to $2,000 See eligibility

| Money order/Cashiers check | Accepted | Not Available |
| Personal check | Accepted | Not Available |

Learn about payment methods.

Ready to bid or buy?
CISCO PA-A2-4T1C-T3ATM

Place a Bid   Help

Item title:	CISCO PA-A2-4T1C-T3ATM
Starting bid:	US $345.67
Your maximum bid:	US $ [_____] (Enter US $345.67 or more)

You will confirm in the next step.

eBay automatically bids on your behalf up to your maximum bid.
Learn about bidding.

or **Buy It Now**

Buy It Now price: US $389.01

You will confirm in the next step.

Purchase this item now without bidding.
Learn about Buy It Now.

What else can you do?

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Seller assumes all responsibility for listing this item.

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Start new search   [Search]
Advanced Search
Java   [POWERED BY ◆Sun]
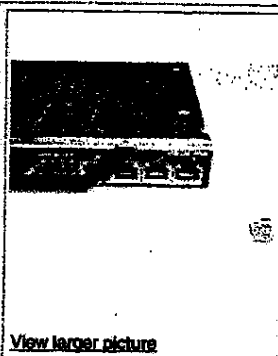
Back to list of items   Listed in category: Computers & Networking > Networking > Router Components, Memory > Cisco Components, Memory > Port Adapters (PA)

PA-A2-4T1C-T3ATM 4T1 CES Ports 1 T3 ATM Port   Item number: 5826034631

Buyer or seller of this item? Sign in for your status

Watch this item in My eBay | Email to a friend

Buy It Now price: US $260.00   [Buy It Now]

Best Offer   [Make Offer]

Shipping costs: US $12.00
Standard Flat Rate Shipping Service
Service to United States
Ships to: Worldwide
Item location: Holland, MI, United States

You can also: [Place bid]

Get alerts via Text message or IM
Sell one like this

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Listing and payment details: Show

Meet the seller
Seller: egearusa (553 ⭐) Power Seller me
Feedback: 99.1% Positive
Member: since May-07-02 in United States
- Read feedback comments
- Ask seller a question
- Add to Favorite Sellers
- View seller's other items: Store | List
- Visit seller's Store:
  @eGearUSA

Buy safely
1. Check the seller's reputation
   Score: 553 | 99.1% Positive
   Read feedback comments
2. Check how you're protected
   PayPal This item is covered up to $2,000 See
   eligibility

Description (revised)

Item Specifics - Item Condition
   Condition: Used

eGearUSA

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We are a GOLD POWERSELLER with outstanding feedback. To give our customers more security we are eBay ID verified and PAYPAL verified. Feel Confident buying from us as we have a Technician on staff who will test all of the equipment before we send it out and will be able to help you out if you have install issues once you receive your unit.

WE ARE HERE FOR YOU! From beginning to end be assured that you will have a pleasant transaction

Part #: PA-A2-4T1C-T3ATM

Description: ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM port

Condition: USED, Tested...

WARRANTY

We will guarantee that the equipment you purchase is as stated in the auction. We will also guarantee against DOA's but the buyer must contact us within 5 days of receipt of the goods to state any discrepancies or the warranty is VOID. If you buy an item and then decide you do not need it for any reason, we will take the product back, upon approval from our sales department, for a 25% restocking fee and shipping charges back to us. Auctions are for hardware only unless specified in the auction.

SHIPPING

All items are shipped via FedEx Ground in the US and Canada unless requested otherwise by the buyer. We can ship overnight any items we have in stock at buyer's request. We do also ship via UPS, or DHL freight service. All shipping costs are paid by the buyer.   International bidders please contact me for a shipping quote. All international packages go out Ex-Works.

Here is the deal with USPS for international buyers. I know it is cheaper for you to use USPS but there is a reason. I have had a problem with them loosing an international package and they are not helpful at all in finding anything quickly. You have to wait 2 months to even file a report, then after that, they take another 2 months to contact customs in the country you sent your package to to see if they can find it. Then there are even more forms to fill out to and paperwork to get together before they will even think about giving your insurance money back. Maybe after 6 months you will have your problem resolved. So, I prefer not using USPS. I will at a customers request and I will insure it and get a tracking number for the package, but I will not be responsible after I give it to the post office to make any claims or deal with them in any way again. So it is at the customer's discretion if they would like to use USPS and take the risk. I do not ship USPS for US or Canadan buyers, FedEx Ground is about the same amount and I don't really want to give USPS the business.

PACKAGING

We pride ourselves in the greatest quality packing you will see from anyone on eBay! We have a state of the art foam packaging machine that surrounds your large quality equipment with a padding that won't be damaged by shipping.

PAYMENT

We expect contact from the buyer within 3 days and payment within 7 days. We do accept Visa/MasterCard/American Express and paypal (the ship-to address MUST match the billing name and address on the credit card, and if you pay with paypal the address must be verified). Other methods of payment are Money Orders, Certified Cashiers Checks, and Wire Transfers. We also do COD with references and approval of our accounts receivables department.


Powered by Selling Manager Pro

On Nov-02-05 at 21:36:35 PST, seller added the following information:

Pay for this auction online with BidPay®

Find more items from the same seller. Bid or Buy Now!

Proxim GigaLink 6421e High Performance 125Mbps MMW Tran
Buy It Now or Best Offer   US $2,500.00

Cisco 3640 USED.. TESTED 12.2 IOS. 96MB DRAM 16MB Flash
Buy It Now or Best Offer   US $500.00

Pallet Jack with Motor. Runs Great SEE PIC's Fork Lift!
Buy It Now or Best Offer   US $450.00
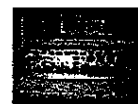
Cisco NM-4T1-IMA Test. Genuine. Stewart Ethernet Jacks
Buy It Now or Best Offer   US $400.00

Visit seller's Store

Shipping, payment details, and return policy

Ships to
Worldwide

Country:	United States		
Shipping and Handling	**To**	**Service**	
US $12.00	United States	Standard Flat Rate Shipping Service	

Shipping insurance
Not offered

Seller's payment instructions
Communication with the buyer is expected within 3 days and payment within 7 days of auction close.

Payment methods accepted

Payment method	Preferred/Accepted	Buyer protection on eBay
PayPal [MasterCard VISA AMEX DISCOVER ECHECK]	Accepted	PayPal This item is covered up to $2,000 See eligibility
Money order/Cashiers check	Accepted	Not Available
Other - See Payment Instructions for payment methods accepted	Accepted	Not Available

Learn about payment methods.

Ready to buy?   Help
PA-A2-4T1C-T3ATM 4T1 CES Ports 1 T3 ATM Port

Buy It Now   or   **Submit Best Offer**

Buy It Now price: US $250.00   Make Offer

[Buy It Now] You will confirm in the next step.   Present your highest offer to the seller.
                                                             Learn about Best Offer.
Purchase this item now without bidding.
Learn about Buy It Now.

What else can you do?

Back to list of items | Ask seller a question | Report this item | Printer Version | Email to a friend

Seller assumes all responsibility for listing this item.

EXHIBIT N

REDACTED

EXHIBIT O

REDACTED

EXHIBIT P

REDACTED